PRIMARY EDUCATION

A Monthly Journal for Primary Teachers

Volume V | April 1897 | Number 4

PRIMARY EDUCATION
PUBLISHED BY THE
EDUCATIONAL PUBLISHING COMPANY
50 BROMFIELD STREET, BOSTON

OFFICES:
BOSTON 50 BROMFIELD STREET
NEW YORK, 63 FIFTH AVENUE
CHICAGO, 211 WABASH AVENUE
SAN FRANCISCO 300 POST STREET

Published Monthly, September to June, Inclusive
Subscription: $1.00 per year. Single copies 10 cents
Entered at the Post Office, Boston, Mass., as Second Class Matter
Copyright, 1892, by Educational Publishing Co., Boston

EVA D. KELLOGG Editor

April

April hath come on;
And the cool winds feel softer, and the rain
Falls in the beaded drops of Summer time,
You may hear birds at morning and at eve:
The tame dove lingers till the twilight falls,
Cooing upon the eaves, and drawing in
His beautiful bright neck; and from the hills
A murmur like the hoarseness of the sea
Tells the release of waters; and the earth
Sends up a pleasant smell, and the dry leaves
Are lifted by the grass; and so I know
That Nature, with her delicate ear, hath heard
The dropping of the velvet foot of Spring.—*Sel.*

Another Arbor Day!

Has our Nature work made us glad to welcome it?

Why need it take a lifetime to learn the beauty and the worth of trees? As children we thought of trees only as a part of the landscape — something that always had been and always would be. Shall trees not mean something more to the little children of to-day?

It is the spiritual significance of trees that needs to be taught in the preparation for Arbor Day. Let us not hide this under a heap of literal facts. It must not be the purpose to pile up geographical and scientific statistics about trees, but to make the anniversary an occasion to lift child-thought to a recognition of their use in the great beneficent Plan, that every child may feel kinder and more reverent toward trees forevermore.

Decoration Day: Once more our children, in a subdued spirit, may silently bow the head over the graves of the patriots who laid down life for duty. Let not a touch of bitterness nor untimely boasting enter into the thought of the day. To teach the little children to bow the knee and drop the flower beside the honored grave, and to sing low the song of loving memory for the sleeping heroes, is the sacred duty of the teachers in our primary schools. And this is enough for the little ones. To attempt to do more — to tell the reasons for the establishment of Decoration Day with all the history it involves, will be confusing and unwise. Time enough for that in the years to come. It is sufficient for the present that our youngest children learn that it is a day to be loyally observed and not dishonored by distracting games and holiday festivities.

Atmospheres

Atmospheres are real things. We feel them and are influenced by them according to the delicacy and refinement of our organization. Little children are controlled and moulded by atmospheres far more than by words. They are not yet world-hardened, and they chill, dwarf, expand, and blossom in varying atmospheres like the human plants they are.

It is the atmosphere of the teacher that teaches, not her words. She may be pedagogically trained according to the strictest letter of the law; may be thoroughly conversant with the latest literature of Nature study, Child-study, and all the rest, and yet fail to carry into efficient and humanizing practice any of her model theories or to happily impart even the knowledge she possesses. Why? Words enough and well chosen. But her lips say one thing and her atmosphere another. The children perfunctorily listen to one but absorb the other. There is no more hopeless thing in the educational kingdom than to hear an energetic, ambitious teacher *talk* teaching and boast of her teaching, with no adequate conception of what teaching means — with neither aim nor power to touch the souls of her children. Is there any hope for the children when such a teacher can rhapsodize over Nature study without being able to stir one pulse-beat of nature-love in the child — who can rave over "color" and "harmonies" and "effects" without the power to bring one color-thrill to the soul? The words only reach the ear, but the cold, unsympathic atmosphere enshrouds the children like a chilly mist and they grow benumbed and heart-silent. They may catch the breezy stir of such a teacher and bustle about with an air that passes for enthusiasm and that secures for them the name of a "wide-awake school." But the power of talking glibly is not the power to *think*, and the ability to talk *about* beauty does not give the power to *feel* its wondrous charm. The atmosphere of a school-room is too real for one who knows what true teaching is to mistake the counterfeit presentment of such a school for the genuine culture and growth of child character.

Can the teacher herself be mistaken as to the worth of her own work? Yes, easily. We see and judge by that which is within us. If the teacher's aim be for showy results she will be content with this and feel no loss.

How, then, *shall* the teacher know whether she is touching the souls of her children or only gaining a superficial control that passes for success? Only by a rigid introspection and self-examination.

Am I more anxious for "results" than for evidences of the mental and moral growth of my children? Is the word upon the lip or the look in the eye of the little child, of most moment to me? Am I kinder and more gracious to the one who answers readily and correctly, than to him who is silent and apparently indifferent? Am I willing to search for the causes of the silence and indifference? What is the heart-attitude of my children toward me? When I come upon them suddenly in the street what do their look and manner to me indicate? When I meet them in the morning am I really glad to see them or do I pretend to be, for effect? Is my morning talk from the heart or from the head? In my reading and number work am I working for a "recitation" or to teach them to think and to express? When I see an improvement in both am I glad for myself or for them? Do I express my encouragement by the "teacher's smile" or the real gladness of a friend, that a growth has begun in an earnest human soul? Do I talk nature to my children because it is the fashion or because my heart is full of it? Do I think of my own success in Nature work or of the culture it will bring to the children? Is my interest in Child-study assumed to prove I am a progressive, "up-to-date" teacher, or am I glad to search deeper to get an insight and truer knowledge of their inner selves? Am I radiating an atmosphere in my school that tends to build up and ennoble the character of my children? Do my words and my influence contradict each other?

The Order of Growth in Childhood

M. V. O'SHEA School of Pedagogy Buffalo N. Y.

IT was believed in olden times that in the mental development of children faculties unfolded in a certain definite order. For instance, imagination appeared at four and continued until seven or eight, while reason sprang forth at twelve or thereabouts. Many people still hold to opinions of this sort, although they are not maintained as extensively as of yore. Modern psychology, however, is tending to re-establish belief in growth periods, but not of quite the same kind as the ancients had in mind. Psychologists are pushing forward a theory which is already fairly well substantiated by strong evidence that in the growth of the brain the different parts or centers develop in a certain order, and the corresponding functions or faculties, if we may call them such, follow this same order. Thus the opinion has been advanced lately that reason in the proper sense is really not of much account until about twelve, for up to that time the associative fibres which bring the various centers and cells of the brain into intimate connection with each other are simply getting ready for work, as it were. Previous to the twelfth year, then, according to this theory, the child's thinking must be largely disjointed, disconnected, concerning individual things only; and we should not expect him to weigh and measure ideas accurately and extensively until toward the approach of adolescence. At present this is only a theory, but it is an exceedingly suggestive one, and if it can be satisfactorily proven it will be of the greatest importance to teaching.

The Significance of an Order of Development

There are other theories respecting the time of appearance of special faculties, as the number faculty, the musical faculty, etc., but probably none of them have evidence enough in their favor yet to be accepted by teachers. But the general question of the order of child-development is one of vast importance, and it is not too much to hope that during the next few years science will contribute much to a better understanding of the whole problem. We ought as teachers to follow investigations along this line with great eagerness; for if it be shown that there is truly a plan or scheme of unfoldment followed by every child, then we have a sure guide for the introduction and continuance of certain studies in the curriculum. When any special function or faculty or activity is about to appear, then is the time to introduce the study which is adapted to that faculty or activity. For instance, if children do not naturally begin to reason in the strictest sense until twelve, we can only do them injury by causing them to pursue before that time studies which require clear, careful reasoning. And further, if those centers in the brain which are specially concerned with the learning of words do not normally begin to develop before seven or eight, we make a great mistake to plunge the child into reading at five. So we might go through with the list of faculties and the subjects suited to their nourishment, and the problem would be to determine when was the proper time to begin each study, when to emphasize it, and when to leave it.

When Train a Faculty?

All psychologists would agree, I think, that the proper time to train a faculty is while it is unfolding, not after it has completed its growth. The time to make an impression upon any living organism is while it is growing — while it is pliable and easily shaped, not after it is matured, for then it is set in its ways and not readily moulded by training of any kind. So that if the musical element in the soul really appears and matures within a certain period, then that period is the time for musical training, and all that is done before or after is comparatively useless, if not worse. I repeat again that this whole problem is being worked upon by psychologists and educators, and as practical teachers we should be on the lookout for the results that bear upon our work. No theory has ever had more of promise for education than this.

Wrong Training Breeds Disease

The theory has another aspect that is of vital significance in the class-room. If a young child takes solid food before the digestive apparatus is ready for it, it creates disease; and so it is believed that if in mental training any study is taken up before the mind is ready for it, the result must be more or less injurious. Such a proceeding will cause nausea if it does not actually bring about arrested development or disease. Something similar might be said of our methods of teaching the different branches. An eminent psychologist recently declared that learning to read by the alphabetic method, as many children are unfortunately still required to do, really causes mind disintegration. If this statement should be substantiated by further psychological investigations, we ought in such an event to become convinced that learning separate letters is not the natural way to introduce a child to reading.

Fundamentals Before Accessories

While we have little definite knowledge upon many of these questions yet, still there are two or three well established laws touching this field that are of vast importance in primary teaching. In the first place, it is shown that in the growth of the brain those centers having control of the large muscles of the body, those concerned in the movements of wholes, as the entire arm, the entire leg, or the entire body. develop before the centers having charge of the finer or secondary movements, as those of the fingers, of the toes, or of the lips. The workings of this law may be easily observed in the case of a very young child. At first only the largest movements are seen; and while the child can manage the whole arm well, it has scarcely any exact control over the individual fingers, and can employ them with little skill or dexterity.

Writing in the First Grade

Now when the pupil comes to school for the first time, it is generally thought that he has acquired great control over these secondary movements, but a serious mistake is oft-times made here. The school curriculum usually requires that the child spend a portion of each day writing with slate and pencil; or if paper is used, it is generally of the narrow spaced sort depending upon the theory, I suppose, that the smaller the child the smaller the tools he should work with, and the less room he requires for his activities. It is to be hoped that the terrible folly of having very narrow spaced paper in the primary grades is rapidly passing into history to become a dreadful warning to future generations.

I have suggested many times heretofore that teachers make tests upon themselves in order that they may appreciate the effects of certain practices upon pupils — that they try their own medicines — and I wish those of a skeptical turn of mind respecting the effect of writing in narrow spaces, upon young children, would write upon such paper themselves for twenty minutes at a time, and note mental and physical results. Let a child who is just beginning to write, and who is so unfortunate as to have to use slate and pencil, or even pen and lead pencil, be observed carefully for a few minutes. Notice how every muscle in the body, even in the face, is strained to the task; note particularly the strain of the fingers, and then put yourself in the child's place for fifteen minutes. See how restless the child becomes after a little of such work.

If anyone is so unwise as to keep a child writing fifteen minutes at a time, observe the character of the writing after seven or eight minutes. Notice whether it is as graceful and perfect as when the pupil began writing, or is it more jerky, more ragged? If the work at the finish is not better than at the start, what has been accomplished during the writing period? In the psychological laboratory of the School of Pedagogy we have very delicate apparatus that will picture, among many other things, the results of fifteen minutes of the common method of writing, upon the systems of young children, and I wish I might take every reader into that laboratory and show him some of these pictures. If the editor will graciously grant her permission, perhaps we may have a few pages of these pictures later. I am sure the reader will be impressed that writing in narrow spaces, and with slate pencil particularly, is a very fatiguing process for the young child, and he ought to have none of it at the outset, and when he does begin have only five minutes or so at a time.

Something is really accomplished by the method of writing followed in many schools, but it is not of the sort we would wish. In the first place, as has been intimated, the child has been seriously fatigued, and if he be subjected to this thing day after day it must eventually result in disease. Let the teacher ascertain the nervous condition of a young child after fifteen minutes writing, using the simple tests suggested in the preceding article. It may be a revelation to her to discover what a serious effect such severe application has upon a pupil of a nervous temperament, especially. The same effects result from all work in the class-room which requires delicate and continuous coördination of muscles. The child entering school is not ready for such things. He ought to come by slow degrees to much exact control, and this may not be expected of him the first day. His writing ought to be with the whole arm movement and upon the blackboard with chalk. It ought to be bold, rapid and free, not so fearfully accurate and painstaking as many good teachers feel should be the case. I know, of course, the objection that will be urged, that a pupil is forming bad habits who is not required to be exceedingly careful from the outset. My answer is that when he begins writing with pen or pencil, (I never would have him write with slate pencil) I should then supervise his work and require him to take care. I would make the periods of writing very brief and would not begin such work the first few months, at any rate.

Doing Things for Discipline's Sake

Teachers will be met here as they are met everywhere with the old argument in favor of early and stringent discipline. Kindergartners used to require the children to thread needles with fine eyes for the sake of discipline; but I think it is quite generally appreciated now that discipline which kills or cripples or breeds disease is considerably worse than none at all. I have in mind a woman who at the age of three was required by a well-meaning Puritan mother to piece a quilt for the discipline she would derive from it. She must thread her own needle and do everything herself, for to be aided would make her dependent. The result is a nervous wreck, the cause of which is easy to be traced. Oh, discipline! How many sins have been committed in thy name!

Enunciation and Articulation

There is another application which I wish to make here of this law of the development of fundamentals before accessories in child growth. It is not infrequent to find teachers who insist upon clear enunciation and articulation the first day the child enters school. Now, to enunciate and articulate clearly requires accurate control over the whole vocal mechanism, particularly the tongue and lips, the movements of which belong to the class of accessories and secondaries. In spoken language breathing and vocalization are the fundamental movements, and they are the ones which should be trained first. Children in speaking or reading do not at first breathe or vocalize properly, and it is beginning at the wrong end to train articulation before the fundamental thing upon which it depends has been properly developed. Again, one may see singing teachers who begin the first day to discipline the vocal apparatus in the head instead of that in the chest as nature would advise. Stuttering and stammering are the result of this faulty method of procedure, as Dr. Hartwell has shown in his studies upon Boston school children.

Common Practices which Fatigue Children

In a preceding talk I spoke of certain practices in the class-room which were fruitful in producing fatigue in pupils, and I wish to emphasize again in this connection what I said at that time. The law we have been dwelling upon is briefly this, that all exercises which require accurate and continuous control on the part of the pupil at the outset of his school life cannot but do him injury. I hope no one will judge me to mean that I would let young pupils do as they wanted to altogether. I should regret indeed to be understood in this way, for I certainly would not give over a pupil's conduct to his own direction entirely. But there is a difference between wisely directing a pupil in school, and making him sit erect in his seat with his arms folded for fifteen or twenty minutes at a time, or toe a line in reading or spelling for fifteen or twenty minutes, with some form of punishment awaiting him if he does not stand *perfectly still*. A child who can do a thing of that sort is not normal. Indeed few adults can do it themselves. One need not surrender the control of her children because she does not require these military attitudes and a military precision in everything the child does. Is it not true that in a school-room of this kind the very object of such discipline is generally defeated because the control of pupils does not become more easy but rather more difficult by the reason that it soon breeds a nervous restlessness which is apt to break out unexpectedly in vicious ways.

Freedom in the School-room

Shall we abandon all discipline then? By no means. Every child should feel that the school-room is a law-abiding place where there is the greatest amount of freedom so long as it is not abused, — so long as it does not interfere with the rights of others. But a freedom which is malicious is really not freedom; is it something else which must be prevented at any cost. The day is doubtless past, or is rapidly passing at any rate, when teachers think that a military atmosphere in a school-room is an indication of its success. It is an indication in a negative way inasmuch as it shows what a failure it is. To repeat, the ideal school is that one where there is the largest amount of individual freedom in thought and action so long as that freedom is not destructive to the welfare of the whole.

The Educative Influence of School Decoration*

IDA A. SHAVER Principal Cooper School Chicago

SHALL we not believe that nature, in its simplicity — at once such a source of inspiration to the poet and the painter — can be much to the child — so akin to the former in interest and fancy?

And yet in how many cases has "the simple flower and leaf and stone" of the poet been torn, shattered, pounded, thrown to the winds and literally forgotten when the investigating spirit has ceased. Should they not rather abide with the child, expressing the grace and beauty of their being, ever reviving the symbolism for which they stand?

We gather the goldenrod and the aster merely to analyze — to penetrate the mystery of their growth with rule and with tape line — and then to thrust idly aside? Or by their graceful droop of line and appearance of fluffy good nature, shall we rather acknowledge a power to lend a charm of serene beauty and peaceful content to the atmosphere of the school-room; a power to inculcate again a lesson of providential care and adornment for even the humblest entity;— a power, too, to recall throughout the year the brightened meadow or even dusty roadside, illumined by the rich masses of the golden weed, that in the words of the poet— "Asks so little, repays so much"— an emblem in truth of pure unselfishness.

We gather the grasses to inspect and to classify. Do we gather none to remain? The lengthened panic grasses which rear aloft some four or five feet high upon our rolling prairies or sandy shores — what grace of line in their gentle, sweeping curves — what delicacy of effect in their feathery flowers!

The tall cord grass of the sloughs, almost reed-like in its perpendicular altitude, the ostrich effect of the woolly beard-grass, the indescribably delicate shades in the fox-tail and the Hungarian millet — and related to these, the tall reed of the marsh, the cat-tails erect in their proud rigidity; and the grains — the graceful, willowy effect of the loosened panicle in the oats, the more firm droop of the wheat and the rye, the limpid effect of the rice — are these to be lost? Or shall they remain to call up and re-tell the story of their home, their growth, their beauty?

And, if remaining, under what conditions? Arranged above, below, the light, willowy effect of a lengthy panicum told against the stiff erectness of a burnished cat-tail; the clumped, heavy, yet substantial effect of Jerusalem corn bringing out in bold relief the lighter, looser, more artistic broom; the softened, silky bearding of the fox and squirrel tails emphasizing the stiffened, bristled bearding of the barleys and the ryes; the mellow ripeness of a bunch of wheat accentuating its own tone only the more vividly by its close proximity to the many-tinged millet; the carrying effect of this subdued coloring — in all exemplifying the principles of delicacy, variety, contrast, analogy, repetition — principles which form the fundamental essentials of all art and literature — does not such an atmosphere take an inherent hold of the apparently unconscious child?

Moreover, the coloring. We are all probably familiar with the remark of one of our most thoughtful psychologists, that "some kindergarten children are as dependent upon the recurrent presence of bright colors as the drunkard is upon his dram," and, further, with the plea he makes in his classes for the handling of the more refined colors by these little pupils.

In our own case, the children are coming from homes where orange reds, vivid greens and bright purples are heaped in one mass as the height of artistic decoration. The children themselves when tested show the greatest preference for purple. Boxes of colored splints disappearing, many a pupil has been found escaping with a bunch of purple under his coat.

There certainly must be a passion for the vivid among these little folks, and will not the refinement of coloring found in the subdued yellows of the mellow grains, in the iridescent tinges of the ripened millet, in the rich tones of the broom and the sorghum, in the greens of the grasses — various and yet harmonious — so whitened in the orchard, so sheening in the squirrel, so silvery gray in the *panicum virgatum* — the greens, the color that artists tell us "requires such high training and refinement to properly enjoy" — will not this subdued setting tend to quiet and lull this depravity of taste to a sleep of oblivion?

Moreover, in using these grasses and sedges and reeds as a means of decoration, have we not entered the depths of neglect and obscurity, delved where a Millet or a Wordsworth might have gone — to the meek, the lowly, the despised — and have we not found therein a study vast in its reach, a beauty incomparable? And is it not a fitting culmination that the meek and the lowly be lifted into the high places? How akin to the youngest child is this sense of poetic justice!

En passant, we remember a literateur, deep in research and penetratingly appreciative, illustrating this latter sense in children by the remark of an eight-year-old — "Why do you like that story?" "Oh! I like it because the little boy whips the big one." Isn't it this same sense of adjusting an inequality, of repairing a wrong, that sends a pupil unbidden into the highways and by-paths of nature — not to probe or to desecrate — but simply to worship at her shrine — to gather her simplest treasures, that his school-room may be beautified by an unpresuming grace, which the symmetrically trimmed hot-house plant, even the choice and well-nurtured rose, can never attain?

Again, the autumn branches remaining with us through the year tell of glowing color and reflected sunsets, while the branches of pines bring with their rigid grace of endurance the thought of protection for bird and animal life.

The animals, too, have come to us; but shall they remain in battered box or cage, kicked into out of way corners until the scientific inspection is needed, or shall they live in the home life of beauty adorned and cared for in homes most fitting, placed upon turned table or elevated pedestal, or suspended in perfect poise, lending herein an additional harmony in the balance or variety of position?

The stuffed birds, always in the dead row of the apparently whitewashed museum-case, or aloft, with open wing, nested in pine branch or other natural setting — the symbol of soaring to the eternal?

Our aquariums, backed up against dreary walls, or, turned to give juxtaposition, contrast, and thereby breaking the dreary monotony of floor arrangement?

The minerals, too, have crept into the hallways and in many places the thought of coming nearer to the child has brought the museum-case rightly to the room, but in what condition? The specimens unused, grovelling in the dust, the others flung into the cabinet, a picture of the slouchy, the unkempt, the ill-cared-for, a case reeking with the lessons of riot and anarchy. On the other hand, classification, arrangement, neatness brought to bear, proclaiming well the teachings of law and order — which shall we place before the impressionable child?

Of course every room has an amount of rubbish demanding attention — supplies of paper and pencils to be screened from sight. Attempts have been made to use silkaline for this purpose, and here we have a struggle for effect, a pretence, a lie, a seeming silk, yet a flimsy sham.

Discovering a parallel to this in the human character, we should certainly abhor it. Why not abhor likewise such companionship for the child? One mite of the real article ought to have more stamina for character building than yards of deceptive finery. Ruskin's Lamp of Truth can well light our way along this belated path.

Shall the huge and lengthened number table be left bare to rack the nerves with the pounding of block and the rattling of can? Or by padding and covering, converted, in so far as possible, into a thing of beauty adapted to use, lending its voice also to harmonize with a scene of peace and serenity.

The rugs! We remember them in days gone by, perched upon the teacher's platform, possibly enhancing the representative of the profession with a dignity not otherwise

* Read before the Primary Section of State Teachers' Association, Springfield, Ill.

possessed, a palpable exposition of extreme selfishness, to say the least.

Our decorations are undoubtedly leading the child to look upward, outward and beyond, and this is most seemly well, but we shall have to hope that while "gazing at the stars, he will not tread upon the flowers." Our rugs may perchance bring him back to the earthly. By their aid, color will leap from wall to table, from table to floor; and with what careless grace they can be thrown — here, there, beneath a table, before a settle — giving us a study of symmetry and variety in their every arrangement.

Delicacy of taste, delicacy of touch, leading to the gentlest of thoughts — how we admire the possession of it! And cloth in its dainty embroidered bits, scattered about under vase or *jardiniere*, relieving the dullness of table or of window-sill, we believe will do much in furthering this feeling.

And the halls, lengthened and dreary in effect — shall they be left to dull the imagination and fright any artistic awakening, or shall they be curtained to produce by repetition, by blending or contrast with wall or with wood-work, a most pleasing and harmonious effect?

And before turning aside from this subject of cloth, we have still to think of the Red, White and Blue. Shall our patriotic lessons be instilled with cotton flags galore? Or is the cause worthy of bunting or silk? And the beauty of the large bunting flag, draped over door or window, its folds floating to the wind, or in repose hanging in the graceful lines of a rich velour; contrast this with the room where the cotton flag flaunts in your face from every corner. Can we but feel in the latter case that Uncle Sam is indeed a cheap article, prone to strut about in worthless, gaudy attire? And is it not lessons of quality rather than quantity, of worth rather than seeming, that we wish our children to imbibe?

And yet how all these attempts may be chilled by the dull, cold blackboard. But in the hands of an artist what a transformation takes place. The dominant color of a room comes in to emphasize and heighten or to temper and subdue the effect of the whole. Masses of color scattered in rich profusion, bits of literature keyed into illustration, tend to give the child an environment where the principles of unity, variety, repetition, contrast, and analogy are utilized about him to produce the smoothest harmony.

Possibly this exposition is vague. Imagine the chrysanthemum idealized in its fluffiness of effect, its largeness of design, swept about the room as it were with the bracing breezes of a westerly wind — here fluffing up *en masse* from below, there falling lithely from above, at one time erect in an elongated growth, again stunted in broadening effect; here an upward, stiffened tendency, there a stooping, tender caress, now flaunting itself boldly forth, again peeping in vague suggestion.

Or again — bits of literature keyed into illustration. Imagine a room toned into the mellowest of yellows. One of Whittier's fine autumn touches being given as a literary gem; the bleak winds, the sere vegetation, the naked trees, the cobbled road pictured therein are shadowed upon the blackboard in this same mellow tone, black enough being used to give tinge to the poetic dreariness in the poem.

Another touch from Tennyson where ye brook "bubbles into eddying bays" is thrown on with here and there a heightened snatch of gold, thus mirroring the joyous thought by dashes of dancing sunshine.

Another; "Break, Break, Break"—the scene chilled with whitened icy touches that lend character to thy "cold, gray stones, O sea."

The effect of this? Allow a case in point to be cited. A child of seven passing to a higher grade was compelled to change his room. He continued for weeks to call upon his former teacher, who, noticing his saddened mien, labored in vain to find out what was troubling him. At length, becoming more communicative, he looked about exclaiming with a sigh — "What a beautiful room!" The teacher suggested that his own room was very pretty. But he answered in disdain — "H'm! They call our room the yellow room. I'd like to know why? There is no yellow anywhere except upon that back board. That *is* pretty, but I can't see it when I am in my seat. I like this room. I like those bits up and down — all about here. They are beautiful."

What was the child seeking? Color — he wanted more of it — no isolated patch was sufficient; he was groping for unity of design, breadth of scope, a complete and rounded whole. In the bits "up and down" he was seeking for variety of arrangement — the straight row and the mathematically precise would have palled upon his taste. In his expression "all about here" he felt the necessity for repetition as keenly as the ballad master does in the handling of a refrain. This child of seven — a year before speaking no word of English, coming from a home where no pretentions to refinement were made, untaught and unpreached to upon the subject in school — had been enabled to feel and appreciate some of the great principles in Art, simply by the silent influence of his room environment.

The masterpiece reproduced in photo and cast is gradually insinuating itself into the school-room. In many cases the photographs are carefully stowed away, appearing only on gala occasions — the casts under lock and key in a storeroom, patiently awaiting a time when a drawing lesson will demand their appearance.

And what a world we are missing by this usage! Photographs mounted upon a harmonizing background, grouped in illustration of a sequence of thought, a contrast of tone; casts firm upon different heights; bass-reliefs against the contrasting blackboard, with crayon and pastel to surround them with concordant halo — Dianas, Clyties, Mercurys, Donatello's and Del Robbias ingratiating themselves by their ever presence — is it not an atmosphere that touches "the depths and not the tumults" of the soul?

Once more, a word of explanation. "Bass-reliefs against the blackboard with crayon and pastel to surround them with concordant halo." Imagine Donatello's St. Cecelia in flat relief placed in the center of a given space of blackboard. The season, autumn, with the thought of bird migration vivid; the room keyed in a dull brick red and gray green; birds flitting to the south across this blackboard space; creamy touches in them here and there which coax up the whitened cast; also streaks of the dull red and gray-green to lure the tones of the room down; thus is an harmonious meeting and blending of the whole produced.

And the effect of these casts upon the children. Do we believe in their efficacy? A short time ago the accustomed six hundred boys of a school trooped down the stairway at the close of the day with a thud that was lightened, a face that was beaming. A smile that deepened and broadened as the procession proceeded broke out along the line and finally culminated in a ringing round of laughter that resounded throughout the building. Donatello's Laughing Boy, placed inadvertently in a recess near by, had been the unconscious instigator of all this hilarious good feeling. This body of apparently uncouth boys had been moved spontaneously to give that piece of smiling content the cheeriest of welcomes, and leave him with the happiest "good-night." Have you or I ever produced a like effect or as goodly a one?

And in regard to the grouping of pictures. We've all been in the goodly homes where we find them strung with prosaic exactness upon horizontal line — dreary to the eye to say the least, in the total neglect of the principle of variety.

But in this very matter what opportunities we have for arrangement to embellish a room, to idealize a thought! Given a Helen, an Orestes, an Iphigenia; — Helen below, attached to the earthly, Orestes rising above in his rebellion against an animal nature; Iphigenia higher still, the embodiment of a pure ideality: as here grouped, one rising to the right and above the other, what a stepping in thought we have toward the eternal!

A group made up of a Petrarch and his Laura, of a Gœthe and his Faust; Petrarch below; above and to the right his ideal, the inspiration of his life. Gœthe lower, in greater depths of thought, and lower still the ideal that could touch the depths of misery and despair.

The same linking, if in nothing but tones of color, can be done in the primary department. Rooms of baby heads in color; of well illustrated myths, of the flower stories of a crane, can be adapted to the same ends — the heavier tones weighted below, the lighter tending higher in their airier tints.

And haven't we rhythmic movements dancing through these arrangements? Can we not feel the accent: *one, two, one, two; one, two, three; one, two, three, four*, pulsating about the room? Possibly all this may be looked upon as the vagary of a wandering mind. Let us then revert to the child. Not long ago a number of boys having hung the pictures of a room, fell back to view the result of their labor. One burly chap stepped up saying, — "I like those steps better than anything else you have in the room." "Why?" "I don't know. Oh! I like the *one, two, three*," his very tone indicated a *feeling* of accent in the depth of color, the increasing rapidity of expression, his appreciation of different values. Just as the suggestive rather than the assertive in art appeals to the more cultured. May it not, in this humble aspect, exert an influence with the one we fancy too young to analyze its purpose?

And we have still the halls to think of and their adaptability to higher ends. Here we have great lengths of space, leading naturally to enlargement of idea and scope of design.

This we find realized in one of the noted schools of the east. Its lower halls contain the pictures of modern masterpieces, modern life, and as we mount the stairs we go back in imagination through the realms of time. Descending from the upper floor we pass through the great stages of human development. All this being placed in the halls, it is open alike to the oldest and the youngest. The bit of history learned in the first year is added to continually without ever being laid aside; the great whole becomes more and more definite as the years roll on. Isn't it this breadth of scheme, this expanse of view that we need? Isn't too much of our education of the piecemeal, desultory character, where a child sees no beginning, no middle, no end, but just a little chunk cut out, set apart, with no relation to a great whole?

We gather material for nature, study it for a time, then cast it aside; and yet what possibilities are existing in these same school halls for the preservation of an enlarged and ever expanding horizon. The grasses, the fodder, the foods, the grains, the sedges, the ferns, the trees in their flower and their fruit of our own locality, of distant climes, flowers from the beginning to the end of the year, all can contribute to beautify and at the same time give the child breadth and scope of knowledge, teaching him to

> "Read the world aright
> And in its common forms, discern
> A beauty and a harmony
> The many never learn."

> Come happy children, come with me,
> We'll walk on the hills and by the brooks;
> And I'll show you stories in pretty books.
> There isn't a blossom under our feet,
> But has some teaching short and sweet.
> That is richly worth the knowing.
>
> — *Alice Cary*

> Good morrow, little rose bush;
> Now prithee tell me true,
> To be as sweet as a red rose,
> What must a body do?
> To be as sweet as a red rose,
> A little girl like you
> Just grows, and grows, and grows,
> And that's what she must do.
>
> — *Joel Stacy*

"Tact is a gift; it is likewise a grace. As a gift, it may, or may not have fallen to our share: as a grace, we are bound either to possess or to acquire it."

— *Christina Rossetti*

An April Adoration

Sang the sunrise on an amber morn —
"Earth, be glad! An April day is born.

"Winter's done, and April's in the skies.
Earth, look up with laughter in your eyes!"

Putting off her dumb dismay of snow,
Earth bade all her unseen children grow.

Then the sound of growing in the air
Rose to God a liturgy of prayer;

And the thronged succession of the days
Uttered up to God a psalm of praise.

Laughed the running sap in every vein,
Laughed the running flurries of warm rain.

Laughed the life in every wandering root,
Laughed the tingling cells of bud and shoot.

God in all the concord of their mirth
Heard the adoration-song of earth.

— *Charles G. D. Roberts*

A Day in Sugar-Land

M. Helen Beckwith

The Ride

IT was just half past nine when Mr. Reed drove up to the door with a big sled covered with straw, and his span of black horses.

Opening the door he said, "Good morning, Miss Leslie! If you and these little folks would like to take a ride with me, put on your coats and bonnets and be out on the steps in just three minutes."

Wasn't that just like Mr. Reed?

"Where are you going, Mr. Reed?" asked Fred, as the laughing boys and girls were being stowed away on the sled.

"I have come to take you to my palace in Sugar-Land, two miles away."

It was on a bright April morning, and Jack Frost had covered the soft snow with a thick icy crust. How it glistened in the sunshine!

"Do you know where we are going, Miss Leslie?" asked Ned. "Not I," I replied, and Susie said, "Well, the way lies through fairyland anyway. See how thick the diamonds are in the fields, and the trees are all covered with rock candy."

We stopped before a queer little house right among the trees.

"Welcome to Sugar Land," cried Mr. Reed. "My palace stands before you! With one touch of my magic wand (waving his whip) I turn you into fairies. Miss Leslie is to be queen whose slightest wish you must obey."

We just held our breath in delight for a minute, and then Nellie clapped her hands and cried, "Oh, oh, it isn't a make-believe at all; it is true! it is true! 'Sugar Land' is Mr. Reed's grove of maple trees, and his palace is the little house where he makes sugar."

The Camp

The house was made of rough boards, but how warm and cozy it was inside!

"Is this a stove?" asked Edna. Why, how funny it is made! It looks like a box made of brick."

"What funny spiders those are on top," said Annie.

"Those aren't spiders; they look like mamma's dripping pans, only they are ten times bigger."

"What you s'pose that is boiling inside of 'em? My! but doesn't it smell good."

"Have you got warm?" asked Mr. Reed, appearing at the door. "You do look for all the world like fairies." "But we haven't any wings," said Sue.

Mr. Reed's eyes danced, and in a minute he came back with the queerest looking things! They were shaped somewhat like wings, with a frame of wood that was filled in with a net-work of fine leather strips.

"What in the world are those?" asked Bob.

"Wings. Of course the *queen* must have wings, but these are like the kind Mercury wore. They go on your feet."

A Sugar Camp

"O, my! O, my! they're snow shoes," and we clapped our hands in glee.

"Sit down, Miss Leslie," and he strapped them to my feet. Calling to the boys to bring along six clean buckets that stood by the stove, he opened the door.

"Two loyal knights must guard you, one on each side. Ready, now. Fly!"

Such flying as that was! I gave one foot a push, and then — there I sat, right in the snow, and my two knights with me.

"You'll have to change footmen I guess," laughed Mr. Reed. "This one stepped on your wings. Let me give you a lesson," and putting them on to his own feet, he fairly danced over the snow, while we ran on the hard crust as fast as ever we could to keep up with him.

He stopped before six tall maple trees and cried, "Ho, fairies all, put down your buckets." Then turning to the tree he took off his hat, made a low bow, and said:

"Oh trees so tall, so kind, so true,
A band of fairies I've brought to you.
Your trunks so brown we'd like to tap
In order to get a little sap.
We won't take much, and your buds are small,
Surely they do not need it all."

In a twinkling he had us all at work. He took tiny Belle for a measure, and with his knife he made a little cut right over her head in the trunks of the trees. In these places the boys bored holes two inches deep with an auger, and drove a small in tube into each one. Underneath the tubes some large, flat-headed nails were driven, and the buckets were hung on by their hoops.

Then the sap began to run out through the tubes and to drip into the buckets. Drop! drop! drop! it always goes, never in a stream, and it takes all day to get a bucket full.

"All my other trees were tapped several days ago, and the men are out gathering the sap," said Mr. Reed.

"There they come now. They have emptied the buckets into that big tub that is on the sled they are drawing. See, they have on snow shoes, and the sled has broad runners to keep it from sinking into the snow. Let's go down and get some of the sap to drink."

"Who do you suppose is here? Step inside and see for yourselves," he said, and there, just as sure as you're alive, was the dearest little fellow in a red brown coat, seated upon the edge of a barrel out of which he was drinking sap, and acting as if he had never tasted anything so good in all his life. His back was toward us, but our shrieks of laughter sent him scampering away, with his little bushy tail curled up over his shoulder.

"Ha, ha, Master Squirrel," laughed Mr. Reed, "you better be leaving. It was only yesterday that I caught you eating out of my dinner-pail."

"Sugaring Off"

But now the fire claimed his attention, and he filled the stove or "arch," as he called it, with long sticks of wood, and dipped a big spoon into the pans on top.

"Is it sap that is boiling, Mr. Reed?"

"It was once, but yesterday I boiled it until it was as thick as molasses, and filled some of those tin cans with it to sell at the store. I am going to make this into dry sugar and I think it is nearly done."

He went out and brought in a snow ball which he dipped carefully into the boiling sugar. When he held it up it had a little cap of waxy yellow sugar on it.

"All right, now for some buckets of snow."

"Why couldn't we take the pan out doors and cool the sugar on that big snow bank?" I asked.

"So we can — plenty of room there," and out we went with cups, spoons, and paddles.

"Boiling down"

The sugar hardened quickly on the cool snow, and an idea came to me.

"Children, don't you believe if we should dip out the sugar carefully we could make pictures with it in the snow? Let's try it. I can make a bird."

"O! O! did we ever have such fun?" cried Nellie.

"See my spider's web, and Dick's tree, just like the one the sap came from, and Belle has made a man."

There were fish, flowers, horses, dogs, mules, elephants, camels, — until Mr. Reed said, "Well, I should think you *were* fairies! Why, a menagerie is nothing beside this. You better eat them now, tho', so you can make sugar cakes while I stir the rest of the syrup into sugar."

Mr. Reed gave us tins for the sugar cakes — and *such* tins! There were big tins, little tins, and middle sized tins. There were round ones, square ones, tins with plain edges, scalloped edges, hearts, little baskets, and pretty jelly moulds with grapes, apples, and ears of corn in the bottom of them.

The children spread them out on a long bench, after filling them with hot sugar, and left them to cool.

But that was not all!

In a box were some eggshells with the inside blown out and we could fill those, too.

Mr. Reed and the men stirred the rest of the sugar with big paddles until it was quite dry; then they put it in a tub and filled the pans once more with sap.

The Dinner

"One o'clock, O queen, and dinner time," said the owner of Sugar Land.

In Sugar Land at our command
The trees give sap so sweet,
But for twenty hungry boys and girls
What can we find to eat?

I asked.

"What! you don't mean to tell me *fairies* get hungry! Had we better go home?" with a twinkle in his eye.

"Oh, no, Mr. Reed, we aren't *very* hungry," said Annie.

"Well, we must see what can be done; where's my wand?" and waving his whip three times, he called:

"Buckets, buckets, if you're able,
Help us make a dinner table.

Here boys, put six at that end of the room in a row, and the girls put six at this end," and when some long boards were laid across, the table was complete with clean newspapers for a table cloth.

"But we haven't any dishes," said Edna. "We could use our little sugar paddles for forks if we only had some plates."

"That's so; where's my wand?

One, two, three,
Here you be,"

and Mr. Reed pulled out of a basket in the corner some paper butter trays, saying:

"Our table is waiting,
Our dishes, too;
But for something to eat
What shall we do?"

drawing down his face and looking very anxious.

"Fairy queen, say some magic rhyme and see if it will help us."

Going up to the big pans of sap boiling on the arch, I waved a big spoon and cried,

"Pans, pans, have you anything to eat?
'Yes, dear lady, in my sap so sweet,
You'll find some eggs, all nicely boiled.
Take them out quick, before they are spoiled.'"

As I put these on the table Mr. Reed, who was raking the fire, called out:

"Halloo! Halloo! what have I found?
Some fish and potatoes all nicely browned.
Tom, go to that basket beside the door,
And see if you can find anything more."

"Oh, here's a whole lot of ham sandwiches and a bottle of pickles. Hooray! hooray!"

Some butter and salt were found and the bill of fare was complete. How glad we were that there was nothing sweet after so much sugar-eating.

We placed buckets on each side of the table and at the ends, for chairs, and all agreed that we had never had so fine a dinner nor so good a time in *all* our lives.

As we were packing up our sugar cakes and getting ready to go home, Mr. Reed gave each one of us a whistle made from a willow stick.

"When you get to Sugar Land Gate," he said, "blow these three times and wish without looking behind you. Your wish may come true."

After we were tucked away once more under the warm robes on the big sled we gave three cheers, and sang on our homeward way:

Merry, merry elves are we
As o'er the snow we glide,
Merry, merry elves are we
Upon our homeward ride.
Tra la la la tra la la,
Tra la tra la la la.

I'm a little wind a-blowing
From South-land warm and fair;
Before my breath the apple-trees
White petals fill the air.
I set a-dance the prairie flowers,
I whisper through the trees,
Ah heigho! here I blow
From sunny southern seas.

The Balls That Played Rainbow

ALICE MAY DOUGLAS

Bert had a box of seven beautiful balls.

One day two little balls said, "We get very tired lying here all day. We wish we could play rainbow."

"How do you play rainbow?" asked Bert.

"Just open the box cover and give us a chance to roll out and we'll show you," said a ball.

Then Bert took the cover off the box and tipped the box over.

O how quick those seven balls rolled on to the floor and cried, "Ha, ha, ha, we'll play rainbow now!"

Red took the lead and then beckoned to Yellow.

Yellow stood beside Red and winked to Orange.

Orange hugged so close to Yellow that you could scarcely tell one from the other. Then she called to Green.

Green rolled up to Orange and called, "Come, come, Blue!"

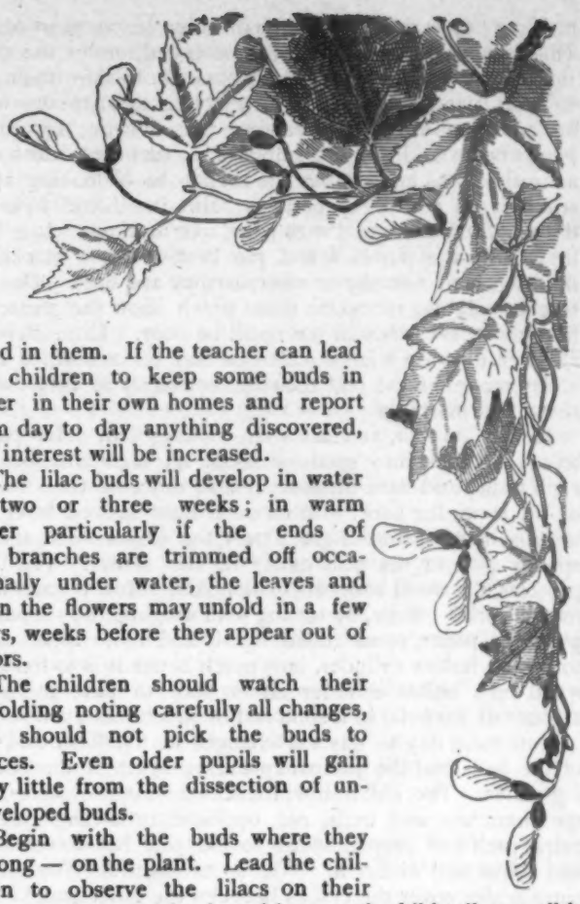
Blue ran up to Orange and cried, "Hurry, Indigo, I want you near me, dear twin sister!"

Indigo ran to Blue, and after they had kissed each other, their faces were still pressed together. Then Indigo said, "Why, Violet is our sister, too. Come, dear."

Violet rolled up to Indigo and the seven balls now stood side by side in the form of a curve. They made the rainbow.

The Study of Buds

CHARLES B. SCOTT Normal School Oswego N. Y.



LAST month we prepared for spring plant work by studying the transition from winter to spring. During April and May, nature really awakens and springs into new life and during this season we have on all sides the strongest invitations to study nature, to watch and be taught by this annual miracle, the resurrection of plant life. In this time of beginnings two topics are peculiarly appropriate, the development of buds and the germination of seeds.

Few phases of nature study have such a rich content for the children and particularly for the younger children. The seeds and buds appeal most strongly to the primary pupils; they and the boys and girls are beginning life together. All must have so much done for them; all are preparing and being fitted to do for themselves — and for other. As the childrem discover how much comes from seed and bud, how from them develop in a few weeks a mature plant, with root and stem and leaves and flowers and seeds, or a branch which is a copy in miniature of the tree from which it sprang, the plants may become to the children both parables and prophecies, symbolizing much in their own lives and in the life of doing for which they are being prepared.

These lessons must come through the children's eyes, the result of careful, patient, personal observation, if they are to leave much of an impression. Mere moralizing by the teacher will produce little effect. The teacher can lead the child to nature, cultivate an observant, inquiring, thoughtful, reverent spirit, ask the questions, but the children must see for themselves and think, as the result of their own seeing, and answer as the result of their own thinking.

Aside from this higher content or value this study of beginnings is the best preparation for the study of plant and ultimately of animal life. In seed and bud the children see life in the (to the children) simplest conditions. Seed and bud are to the child what the plant or animal cell is to the more mature student of biology, the unit out of which the more complex plant develops, the foundation on which (from the child's standpoint) must be built any real comprehension of the life of the mature plant.

The youngest child can understand or comprehend that the seed or bud and what comes from it are one, while if he begins with the mature plant he is almost certain to think of its parts as more or less unrelated, not as mutually dependent and mutually helpful parts of one whole.

Our general aim, then, in the plant study for early spring, is to lead the children to gain through their own eyes some understanding of the beginnings of plant life and growth, and to absorb through their own eyes the lessons which will help them to better appreciate their own life and growth and preparation for the future. This aim will shape and largely determine the character of our work during the spring.

The Development of the Lilac Bud

Among the best buds for early study are those of the lilac. The lilac is widely distributed and its buds can usually be easily obtained. They are so simple, their plan so clear and their parts so large and distinct that any child can understand them.

For the first study the large buds on the shoots springing from the base of the plant are good, as they usually have only leaves. A little later can be studied the thicker buds near the upper part of the lilac containing both leaves and flowers.

Of course if the children can be induced to gather for themselves the branches with buds they will be more interested in them. If the teacher can lead the children to keep some buds in water in their own homes and report from day to day anything discovered, the interest will be increased.

The lilac buds will develop in water in two or three weeks; in warm water particularly if the ends of the branches are trimmed off occasionally under water, the leaves and even the flowers may unfold in a few days, weeks before they appear out of doors.

The children should watch their unfolding noting carefully all changes, but should not pick the buds to pieces. Even older pupils will gain very little from the dissection of undeveloped buds.

Begin with the buds where they belong — on the plant. Lead the children to observe the lilacs on their way to and from school and have each child tell you all he can discover about them; their occurrence (where seen, how widely distributed, only growing or thriving when cared for by man; perhaps the teacher can add something about their original home in Persia), shape (usually bushy with many stems arising from the ground and spreading out above; sometimes rather tree-like, with a trunk from the upper part of which the branches come), height (how many times as high as the children, if they have no other standard of measurement.)

Compare the shrub as it now appears with its appearance last spring or summer. What has become of its leaves and flowers? Why did they fall off? Why did the lilac have no leaves during the winter winds and snows? What do the children remember about the flowers of the lilac, their arrangement (in great clusters) and their colors, (lilac, sometimes purplish, sometimes white.)

Study the branches and buds as they are before they begin to develop, not dwelling much on details. These can be better understood after the buds have opened.

Note arrangement of branches (opposite in pairs, successive pairs perpendicular to one another, what the botanist calls the opposite arrangement; often forking at the end), Why are the branches in order? Why not have all the branches on one side or on two sides or scattered in any way? Does this arrangement make a better looking bush? Does it help in pushing out leaves and flowers where they will not be crowded and can be better seen? Notice position of buds (on the sides of the branch, the larger buds usually near the top or outer end.) Compare arrangement of buds and branches. Note the little projections or "seat" from which each bud comes, and have the children find the rings about the branches. Later we will see how these are produced.

Have children note and describe the shape (draw) and the size (measure or compare with their fingers or some other childish standard) of the buds, comparing those on different parts of the stem. Insist on as careful observation and as exact expression, by words or motions or drawing or modelling, as the children are capable of. Even first grade children can observe carefully and can express, if encouraged to tell in their own way, not always required to express in words ideas for which they have no words.

Have pupils draw a branch with three or four pairs of buds (the teacher first drawing it on the board, under the direction of the children as much as possible, to show them how to draw it and to aid them in selecting those points which are most important, but erasing this drawing before the pupils begin to draw, and emphasizing that each must draw as truthfully as he can only the branch he is looking at) or stitch it on a card, or perhaps paint it. Little folks will draw best on the board with large, free motions. It is helpful to have the pupils select the best of these blackboard drawings and tell why or wherein they are best. The wise teacher will also recognize those which show the greatest or best effort, even though the result be poor. Later have the children draw on a large scale one bud on its seat, or make a clay model of the bud showing, as exactly as they can, its shape and markings.

It may be well, at least when working with older pupils, to cut a branch into sections about an inch long, one for each pupil, and have them study and describe the structure of the stem, the bark, with its outer light-colored layer and inner somewhat fibrous green part, the denser wood and the spongy pith or the pith cavity in the center. The bark protects, the wood supports or upholds. How is each fitted for its work? Show, by testing with weights, the supporting power of paper, some rolled tightly and some rolled so as to form a hollow cylinder, how much better it is to have the wood in a hollow cylinder rather than to have the same amount of material in a solid rod of much less diameter.

Note from day to day the changes in the form and size of the buds and the gradual spreading apart of the enclosing scales. The children will discover that the scales, like the branches and buds, are opposite in arrangement, in pairs, each pair perpendicular to the pair below or without and above and within it. Why so arranged? Why do the outer scales cover the cracks between the inner scales? As the unfolding continues, compare arrangement of scales and of the leaves within. The same plan is found throughout the whole plant. Every branch, bud, scale and leaf has its place. Why?

Compare the outer two or three pairs of scales (the "overcoat") with the two or three pairs between them. Why so much thicker and harder? Notice outer and inner surfaces. Why so different?

Note how much longer, softer and greener the scales are the further they are from the outside. Why? How many pairs of scales before we come to the leaves? The inner scales are so leaf-like that it is difficult, at first, to tell which are scales and which are leaves. Scales finally drop off. Leaves do not (until much later in the season.)

In the lilac the scales are simply modified leaves which Mother Nature has made tough and thick to protect the soft, delicate true leaves within. After once opening, do they ever draw together over the young leaves at night, or when cold, to protect them?

When the leaves can care for themselves and also for the young leaves which keep developing within, the work of the scales is done and they gradually drop off. Note the mark or scar left by each, and the set or cluster of scars, arranged in a ring about the branch, left by all of the scales of one bud.

After the bud has developed enough for the children to see that it will form a branch, compare this ring at the base of the bud with the other rings previously observed on the branches, and see if the children cannot work out for themselves the idea that each ring marks the base of a former bud, and the length of branch between successive rings shows the amount formed from the bud of each year. By the number of these rings the age of the branch can be told.

The leaves in the interior differ from the scales in being more distinctly veined and having or forming a stem. Note how carefully they are packed. As the scales fall off, the central axis or stem to which they are fastened and the stem of each leaf lengthens, and we have a leafy branch.

The buds containing flowers are quite similar to the leaf buds, but have in their center, wrapped about by the leaves, a mass representing a very minute bunch of grapes. Each little ball is a flower. Why does Mother Nature or Mother Lilac place the flowers in the center, the best protected part of the bud? The lilac has reason to be proud of her blossoms. Some time we may learn another reason why the lilac and other plants take the very best care of their flowers. As has been said, the flower buds may form flowers if kept in warm water.

This study of the lilac may take two or three weeks, alternating with the "spring notes" suggested last month, or with the study of germination.

When the children have studied the whole development of the lilac it will be helpful, for a review, to go back to the undeveloped bud, and have the children tell about the use of all the parts and the way in which they are fitted for their work. For the younger pupils the teacher may tell in story form the life of the lilac bud, or let the lilac bud tell its own story, the children supplying, as far as they can, the leading facts and incidents. This review is most important; properly conducted, it serves to bind together and clinch what might otherwise be disconnected and of comparatively little educational value. The success of the review and the final results of the work will depend on the extent to which the teacher has led the children to see and think and tell for themselves rather than merely glance and listen or absorb, and the faithfulness with which she has reviewed the essentials in all previous work before taking each new step.

The Development of Other Buds

Other buds good for early study with young children are those of the horse-chestnut, elder, beech and currant. In all these the parts are large and the leaves develop before the flowers.

It seems wise to leave until later those more difficult buds in which the flowers develop before or with the leaves, such as the cherry, apple, elm, poplar, cottonwood, box-elder and most of the maples. The pussy willow we will, of course, use when we can get it, very early in the spring, but will study it as a beautiful lesson in protection and not expect the children to understand its plan or structure.

In studying flower buds we will find it helpful, if we wish to study and understand them, to begin with those having the simplest kinds of flowers, with only pistils or stamens, or both, but with these large enough to be seen and understood. The box-elder is very good, or most of the maples, in which the parts enclosing pistils and stamens are rudimentary.

The buds of many house plants are very good. I have been much interested during the winter in watching the unfolding of the leaves and flowers of the begonia and calla. The protection and unrolling of a fern leaf is a poem without words.

After the middle of April there is endless opportunity for observing the way in which the plants out of doors push out of their protecting coats. Any common weeds are well worth observing.

The success of the teacher in interesting her pupils must be largely measured by the extent to which she gets them to use their eyes in such out of door observations.

Teachers will find Newell's "Outlines of Lessons in Botany" (published by Ginn & Co., Part 1, Seed and Leaf, $0.55, Part 2, Flower and Fruit, $0.90), most helpful in bud study as in much other plant work.

Seeds and Their Germination

Space does not permit the consideration of this topic at this time. Suggestions for seed study were given by the writer in PRIMARY EDUCATION for April, 1895. An outline for the study of germination will be given in the May number. The seeds, however, should be planted in the school window boxes not later than the middle of April. Early dwarf varieties of pea, bean and morning-glory are best.

The old order changeth yielding place to new,
And God fulfils himself in many ways,
Lest one good custom should corrupt the world.
— *Tennyson*

Cowslips

When mists beside the river kneel,
  Like still gray nuns at matins,
And catkins o'er the willows steal,
  All dressed in silvery satins,
Before the soldier reeds unbind
Their swords to tilt against the wind.

Before the grass begins to toss
  Its pretty fancied trilling,
Or buttercups find yellow floss
  Enough to make their frilling,
The cowslips sit in golden crowds
Beneath dim April's frowning clouds.

— *Sel.*

Seed-Babies

Beans

"WELL, I never!" Jack said that because all the beans he had planted were on top of the ground.

Jack was only six years old, and not very well acquainted with beans.

No wonder he was surprised to find them on top of the ground when he had tucked them so snugly out of sight in the brown earth only a few days before.

Jack looked at his beans and began to get red in the face. He looked a little as if he were going to cry.

"When Ko comes I'll just punch him!" he said at last.

For who could have uncovered his beans but his brother Ko?

For Ko would rather tease than eat his dinner,— except when there was chocolate pudding for dessert.

Ko's real name was Nicholas, but it took too long to say that, so Jack called him Ko for short.

Jack picked up a bean to replant it, and what do you think had happened? Something had, for it did not look as it did when he first put it in the ground.

It had turned green to begin with. Jack had planted white beans.

He knew they were white all through, for he had bitten a good many in two to see how they looked inside. And now the coat on the outside, that stuck so tightly at first, had peeled half off, and the bean was green!

Something more had happened, — a little white stem has come out of the bean and gone into the ground.

Jack was so surprised at all this that he forgot he was angry at Ko, and when his brother came up only told him to look.

Ko tried to pick up a bean too, but it was fastened quite firmly in the ground.

"They're growing," said Ko.

"Did you pull them up?" asked Jack.

"No, indeed!" said Ko.

"They must have pulled themselves up," said Jack.

"Yes," said Ko, "I guess that's it. They grew so hard they pulled themselves right up."

Then Jack sprinkled earth over them until he could not see them, and went away.

In two or three days they were all on top of the ground again!

"Well, I must say!" said Jack, "they don't know anything — to keep unplanting themselves that way!"

But now he could not pick up any of the beans without tearing loose the stout little stem with roots at the end, that had gone down into the ground.

"You bean," he said, tapping one on its green head, — for they had grown very green now,— "you bean, I shall plant you deep enough this time; you will die and not grow at all if you don't stay still in the ground."

At this the bean smiled.

A bean cannot smile, you say? Oh well, that is what nearly everybody would say, but I can tell you, a great many people do not know about beans, and I am sure that bean smiled.

"If I did stay still in the ground, how could I grow?" asked the bean.

You think beans cannot talk?

Well, as I said before, a *great many* people do not know about beans; and whether they can talk or not, this bean asked Jack how it could grow if it stayed still in the ground. And what is more, Jack was "stumped," as the boys say, by the question, and could not answer.

Of course nothing that stayed perfectly still could grow.

"But why don't you grow up a little stem and let the bean that I planted stay planted?" asked Jack.

"I will tell you," said the bean; and if by this time you do not believe that beans can talk, you may as well not read another word of this story.

Talking beans are just as true as "Cinderella," or "Hop-o-my-Thumb," or "Little Red Riding-Hood," or "Jack, the Giant Killer," and those people.

Of course everybody knows how true *they* are.

So Jack's bean said, "I will tell you," and then asked, "Are your hands clean?"

"They're fair to middling," said Jack, looking at his hands, and for the first time in his life wishing he had washed them.

"Oh well," said the bean, "if they are not sticky it won't matter. I am going to let you look at me, but I don't want you to pull me apart, either on purpose or by accident."

"I won't," said Jack.

"Well, then, *very* gently open this green part that you planted when it was white, and that won't stay under the ground, and look."

Jack did so.

He found the green part was split in two halves, and right between the halves, fastened at the end where the root went down, were stowed away two pretty green leaves.

"My!" said Jack.

"Well, I guess so!" said the bean, rather proudly. "You see I have these little leaves packed away even when I am white.

"But then they are also white and very, very small.

"You very likely would not even see them, at least not with your own eyes.

"You would see something if you knew where to look, but you would not see two leaves without the help of a magnifying glass.

But I know they are there all the time."— "*Seed Babies*," *by Margaret Morley. (Ginn & Co.)*

Suggestions for Arbor Day

KATHERINE BEEBE

AS there are "many teachers of many minds" so will there be many ways of recognizing Arbor Day in our school-rooms. Of course the children's interest in the day will be in proportion to the genuine sympathy of the teacher with the meaning and purpose of the occasion. To many it will have no meaning whatever; to others it will have a sort of far-away interest — an interest which will not seem to touch the life of the individual school or teacher; to lovers of nature, and particularly to lovers of the trees and woods, it will be a day so well worth observing that it will bring both pleasure and profit in its train.

To those teachers who may wish to observe, utilize or celebrate the day the following suggestions are offered.

I

Let us suppose a teacher who wishes to take some notice of Arbor Day but who, for reasons best known to herself, cannot spend much time in preparation. She concludes to make her day's program a tree program, and lists something like the following to be arranged in an order suited to her own particular exigencies.

1. Tell, write and have children read the story of Arbor Day.
2. Practise and learn a tree song. ("See the trees all in a row, etc.," from PRIMARY EDUCATION for April 1896.)
3. Nature lesson on twigs of oak, elm, willow and maple trees.
4. Reading lessons developed from nature lesson.
5. Tree stories from First Readers.
6. Writing lessons about trees.
7. Blackboard drawing of trees.
8. Painting lesson from leaves, twigs or blossoms.
9. For physical exercises imitate motions of trees.
10. Read to children the story of "The Miraculous Pitcher," from Hawthorne's Wonder-Book.
11. Reading and writing lessons from the story.
12. Free-hand drawings of the story.
13. For seat-work, sew a leaf.

II

Suppose another teacher who decides to do her ordinary school work in the morning and to have the children "speak pieces" in the afternoon. During the music hours for some time past she has been singing tree songs with them and now they can tell "The Story of the Tree's Year" in the four songs they have learned.

1. "The Sap has Begun to Flow."
2. "See the Trees all in a Row."
3. "Come Little Leaves said the Wind."
4. "The Tree in Winter."

The second song she gets from her PRIMARY EDUCATION for April 1896, and the other three from "Songs for Little Children," by Eleanor Smith, Part II.

Then come the "pieces," most of them parts of really good poems, with a simple telling of the purpose and history of Arbor Day as the beginning.

1. The Tree . . . . . Bjornson.
2. The Brave Old Oak (one stanza) . H. F. Chorley.
3. The Maple (one stanza) . . . . . Lowell.
4. The Hemlock Tree (one stanza) . . Longfellow.
5. The Birch Tree (from Hiawatha's Sailing) Longfellow.
6. Simple rendition of the Story of Rhœms by Lowell.
7. Of the "Fir Tree" by Anderson.
8. Of "Daphne."
9. Of "Baucis and Philemon."
10. Part of Bryant's "Planting of the Apple-tree," given by several pupils.
11. Reading of the story of "Apple-seed John" by the teacher.

Bjornson's "The Tree" is found in Eliot's "Poetry for Children." "Apple-seed John" is by Lydia Maria Child and is given in the seed chapter of Emilie Poulsson's "In the Child's World." "The Brave Old Oak" is given here in full as Bryant's Library of Poetry and Song is not as accessible as the other books needed.

"A song to the oak, the brave old oak,
Who hath ruled in the greenwood long;
Here's health and renown to his broad green crown,
And his fifty arms so strong.
There's fear in his frown when the sun goes down,
And the fire in the west fades out;
And he showeth his might on a wild midnight,
When the storms through his branches shout.

Then here's to the oak, the brave old oak,
Who stands in her pride alone.
And still flourish thee, a hale old tree,
When a hundred years are gone."

III

Suppose another teacher who, in addition to some such program as this, makes her celebration both pleasing and impressive by enlisting the help of some of the older children of the school to so decorate her room with sprays, branches and blossoms as to transform it into a veritable "greenwood." Flowers in vases and drawings on the blackboard make a beautiful setting for the younger children's efforts.

IV

Suppose still another, who is so sure that activity is not only a law of child-growth, but the means of giving to children the largest amount of pleasure in any undertaking, who arranges, in some of the mysterious ways known only to the resourceful teacher, to do all the preparing for the celebration in company *with* the children. Suppose that all go out together to gather the branches and blossoms and that all take a hand in decorating the room.

V

Suppose another who, deeming it inexpedient to go out with all the pupils, allows a chosen few to work with her after school hours on the day before the celebration.

VI

Suppose another who lives in the suburbs, or who is sufficiently interested to go to the country, who brings to school a basketful of seedling trees, one for each child, which on tree-planting day are, with due ceremony, put into pots or boxes, there to remain until the last day of school when they may be transplanted according to the various home exigencies.

VII

Suppose a few vigorous seedlings or saplings are secured and an excursion made to certain back yards or grass-plots for a tree-planting, the children being impressed with the idea that even if present occupants move away some others will enjoy the trees.

VIII

Suppose a school-yard where real little trees can be really planted.

IX

Suppose a suburban or country school where an out-door excursion can be planned having for its object the securing of baby trees to be planted by each child at home.

X

Suppose (this actually happened) a suburban school-yard, where a niche in the building makes a sheltered sunny corner, which is made into a nursery for baby trees by a careful enriching and cultivating of the soil. Suppose, as seedlings change to saplings, that they are transplanted into the open space and new seeds or seedlings take their places.

XI

Suppose the tree-planting takes the form of a seed-planting and that acorns, maple-seeds, nuts or fruit-seeds are planted to be watched or cared for during the rest of the year.

XII

Suppose that if you cannot get seedlings, seeds or saplings you cut willow switches and start willow trees from them.

Primary Work in Chicago Normal School

(*Formerly Cook County Normal*)

Reported by ALCYONA JOHNSON

Lesson on Food

MISS COOKE Teacher

THERE had been a few lessons on this subject in which the children had given the names of articles used daily for food; they had learned to recognize these names and to write them upon the blackboard.

Miss Cooke began by saying:

"We read that most of our food comes from plants. Nellie and Gladys did not think that could be. They know many things that come from animals"— and she wrote, pork, steak, veal, beef, mutton, liver. Pointing to the word "beef," she asked from what it came, and was promptly answered.

When the different kinds of meat had all been traced to animals, she said, "All this food from animals. Then can it be that most of our food comes from plants?"

Lucy said she was sure it was true.

"How can we find out?" was asked.

Charlie gave an answer that showed plainly that he was thinking earnestly. "We might count how many things we get from plants and how many from animals."

"Well," said Miss Cooke, "all who want to, may go to the board and tell me the things we use for food. Tell me as quickly as you can," and with all the speed possible the little fingers made the words. Each word stood for something the children had seen and eaten.

When all had finished and taken their seats, the words were counted, and it was found that there were as many things furnished by animals as by plants.

"Then how can we say that most of our food comes from plants?" and the teacher looked at the eager faces before her as though she were puzzled and wanted help.

"Well, any way," said Sam, "plants grow up and animals eat them and"—

"Show that," said Miss Cooke, looking her approval. "Show it on the board so all can see. Perhaps what we read *is* right."

So Sam selected some names of animals from the board and formed sentences, such as

Sheep eat grass.
Cows eat grass and corn.

And so it was made clear that plants furnish most of our food. "It can be traced back to plants," they agreed.

"I'd like you to find out some of the things that are in the food we eat each day. How can you find this?" and the teacher wrote the word *sugar*.

Some one pronounced the word and said:

"When there's sugar in anything, it tastes sweet."

"Right." Miss Cooke had a number of articles on the table. From them she now took some pieces of starch which she showed to the children.

"What do you think it is?" she asked. Some one told her, and the word *starch* was written.

"What have I here?"

"A cup of water."

"In this bottle I have this, and she wrote *iodine*.

"Find out what it is," she said, and they did, pronouncing it.

"All right. See what I am going to do. I'll ask Helen to get the"— pointed to new word and children pronounced it.

"Helen may pour some of the iodine into the water."

With a look of pleasure at being asked to help, Helen stood before the class and poured a few drops of iodine into the cup of water.

Miss Cooke then erased everything from the board and asked the children to tell her with chalk the name of the dark stuff in the bottle. Everyone tried; some had to be helped by having the word written for them two or three times. At last all wrote it fairly well.

A piece of starch was dipped into the cup and then held up so all could see it.

"What color is the starch now?"

"Blue."

"That is the funniest thing," said the teacher. "Any place where iodine finds starch it does this same thing — turns it blue." Can anybody go to the table and get"— (wrote *bread*).

It was brought, was put in the cup and turned blue.

"Now what do you know?" How the hands went up!

"Tell me on the board what happened." After some struggles the children wrote:

Iodine turned the bread blue.

"Do you suppose that is the only thing we eat that has starch in it?" was asked. They did not know, but thought they might find out.

"Write on the board the name of something you would like to try," Miss Cooke said to a little girl. Oat-meal was written.

Some oat-meal was brought from the table and tested.

"What has oat-meal in it? Tell me on the board, all who can."

Very soon the board bore a long line of efforts, that very plainly were meant for the new word — *starch*.

Here the lesson ended. The children had learned some new words, some facts, some chemistry, and had learned all, not as a task, but with pleasurable interest.

Small Sister — How do you s'pose peoples way up Norf teep warm in de winter, Bobby?

Small Brother (scornfully)— Why, what does you s'pose de fur twees is for?

Song

WELCOME TO ARBOR DAY.

Words by E. P. Stearns. Arr. from German Folksong.

Cheerfully.

Welcome to Arbor Day!
Gladly we sing,
Nature from sleep awakes,
Greeting to Spring!
Blossoms with odors rare
Make earth a garden fair;
Sound we thy praises with notes loud and strong.

Welcome to Arbor Day!
Come one and all,
Join in our merry glee,
List to our call.
Woods with their tribute ring,
Birds cheerful off'ring bring;
Swelling the chorus in one gladsome song.

From Ginn & Co.'s *Coda*. Copyrighted by Ginn & Company, Publishers.

How the Raindrops and Sunbeams Helped

One morning Mother Nature looked about her, and said: "My children have had such a nice long rest, and it will do them good for they have a busy summer before them. It is time to go to work now, and as some of the babies just won't wake up till they have to, I must send for my helpers at once." The long days carried her messages, which in our language would have read something like this: —

My dear Helpers, Sunbeams and Raindrops: —

You are needed down here on earth. It is time to dress my plant children, and give them work to do. The birds must be called back from the South, and the cocoons must be opened so that my butterflies can come out. I shall have to make good soil, and get my clover beds ready for the honey makers. Come at once, as some have been sleeping too long already. Whisper to the trees as you pass, that it is time they were budding. Be gentle with all for they are my children, and I love them.

Good-bye, from your
Mother Nature

This she directed to the Sunbeams at Blue Sky Park, and the Raindrops at Cloudland. When the message reached these little helpers, they started off at once to obey the call, and the Sun gave such a merry laugh that grandma came to the door of the farmhouse and remarked: "How warm it is to day; quite like spring. I believe I will set out my geraniums." But just then a silvery voice said: "Wait a little while longer till we make the ground soft," and pop came a raindrop upon the dear old lady's nose, and she hurried into the house, saying: "What queer weather we are having! first sun, and then rain." Then the Raindrops and Sunbeams smiled at each other, and danced more merrily, for they knew what good work they were doing to the great brown house where the flowers dwell.

The tap, tap, of the raindrops woke them up, and when they raised their sleepy heads and felt the warm kisses of the sunbeams, they were glad and began to grow. Soft breezes called to the leaves to come out, and soon the brown coats which the trees had worn all winter were replaced by new green dresses. Pussy willow and snowdrop were the first to herald the spring, and crocus and violet soon followed. Out in the woods blossomed tiny pink-and-white May flowers, and their little seeds burst off their jackets and sent up green plumes. Then Mother Nature called her helpers again, and told them to search for the lilies, and dress them in white robes for Easter. And so each beautiful flower came again — and the birds sang once more, and the children were glad that spring had come again. The little helpers had done their work well, and were happy — and every one thanked God for the spring.

— *Ellen Robena Field in Kindergarten News*

Imagination in Number IV*

John H. Tear Principal Washington School Chicago

IT is sometimes objected that this emphasis of sense perception, this dealing with things, with forms and "concrete" number, blunts the imagination. It is thought that because the child is set to comparing blocks, to handling things, to measuring physical objects, that he is deprived of the opportunity to use that imaging activity with which children are said to be so well endowed. But those who make this objection fail to see the relation of sense perception to mental development. The truth is that sense perception is the condition of all higher experience. The child must come in contact with an outer world of things before he can by any possibility have a mental world of images or ideas. Imagination can use only the materials with which sense experience has furnished it. The person born deaf has an image world without sound and the images of those blind from birth must necessarily lack color. One's image world can have no elements not found in his sense world.

It follows that the only way to cultivate the imagination is to begin with the outer world, with sense perception; but because a *beginning* must be made with physical things it by no means follows that they are to be made the end, or that physical objects are to be clung to after they have performed their proper service. The only reason for beginning with things is that they may be discarded as quickly as possible for ideas. As the basis for all interpretation, in whatever subject one chooses, is a good stock of definite mental images, it is essential that care be taken to secure such a stock of images to serve as a basis for interpretation in arithmetic. If number is to be anything more than a set of characters called figures with which the child may practise certain tricks of legerdemain, he must have some concrete mental basis for his number.

The distinctive mark of imagination is that it is *constructive*. Images are not exact copies of outer things. They are mental constructions out of the elements of sense experience, and however airy and ethereal the play of the imagination may become, it must still use this sensuous material. And all imagination is constructive, whether it be a reproduction of some actual sense experience or the construction of some impossible chimera.

Now this work in number from the beginning furnishes constant exercise in the construction of images. When the child *sees* the relation of B to A (See Fig. 1), he must con-

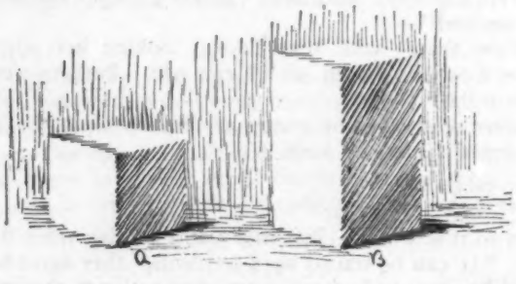


Fig. 1.

struct a quantity equal to B of which A forms a certain part, or he must reconstruct B, mentally, out of parts each equal to A. As this is a mental construction, it matters not

*Based upon *The Rational Arithmetic*, by W. W. Speer, Assistant Supt. of Schools, Chicago, and published by Ginn & Company.

whether it be done with the eyes open or closed. In all this number work with physical things the child is doing something with something. He is constructing the values which he gets. As the process of sense perception, so far as it involves quantity, is itself a construction, a mental measurement if you like, the objects not being simply given but constructed, so all evolution of those objects, by means of those quantitative relations called number, is a reconstruction of those quantities; and this reconstruction is mental not physical. Whenever a given object is related to or measured by another object, it is ideally reconstructed out of units each equal to the other. This reconstruction, being ideal, is the work of the imagination, or the representative activity.

There is then no number without imagination. And this elementary ideal construction is not essentially different from the higher forms of the imagination. It differs from the so-called constructive and the creative imagination only in that its object is suggested from without rather than from within as with the latter. In passing from the comparison of blocks to the solution of problems, the child passes to that form of imaginative construction in which he chooses his own particular forms of representation, for he may represent to himself the quantities involved in the problems at will so long as he adheres to the given relations.

Furthermore, when the child learns number thus concretely, when his number comes through the comparison of quantities, all the operations or processes involved have a unity. The processes of addition, subtraction, multiplication and division appear not as so many distinct things to be learned, but they are *seen* to be simply aspects of this one process of construction. In comparing B with C (Fig. 2) all of the fundamental processes of number are involved. The child who can imagine these quantities, can hold them before his mind until he sees all of these processes wrapped up in the one construction. C repeated 4 times equals D,— *multiplication*. C plus $\frac{3}{4}$ of D equals D; $\frac{1}{2}$ of D plus 2 C's, or $\frac{1}{4}$ of D plus 3 C's equals D,— *addition*. C may be cut out of D four times, or it may be subtracted from D once, twice or three times, leaving $\frac{3}{4}$, $\frac{1}{2}$ or $\frac{1}{4}$ of D,— *division* or *subtraction*. Or, again, D may be separated into 4 equal parts each equal to C,— *division* or *partition*. The child who has a concrete basis in mental images for his number work, who does not blindly follow the rule or work from mere memory, but who works from an insight into the conditions involved as he represents them to himself, is constantly using his imagination; and he is using it in a very effective way. The objection sometimes urged that the mind is held down too closely to definite objects widely misses the mark, for any use of the imagination that is to be of any value must pertain to the construction of objects that have some sort of reference to real life of which physical things form rather an essential part.

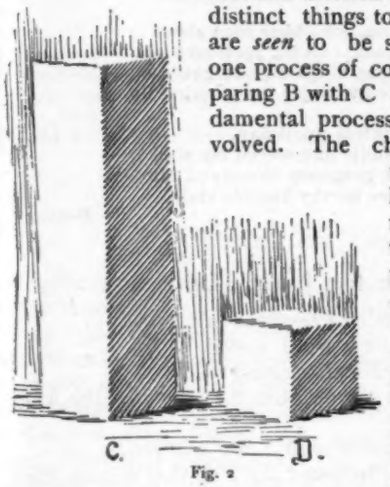


Fig. 2

It is important to remember that we should get away from the objects as soon as possible. Just as we must get away from particular objects, must constantly vary the quantities in which the relations are expressed, so we must get away from physical objects entirely and express our relations in images if we would have control over our ideas. And this control is the measure of success. The child finds that all the conditions of his number problems, are summed up in quantities and the relations between these quantities. In the simplest problems he always finds given either two quantities to find a relation, or one quantity and a relation given to find the other quantity. His only hope of solution is, by representing to himself the given quantities, to seek to discover the required relation; or, by means of the given quantity and relation, to seek to construct the quantity to be found. It is evident that here the imaging activity is brought into constant service.

Exercises

Place before the class a set of blocks, (Fig. 3.)

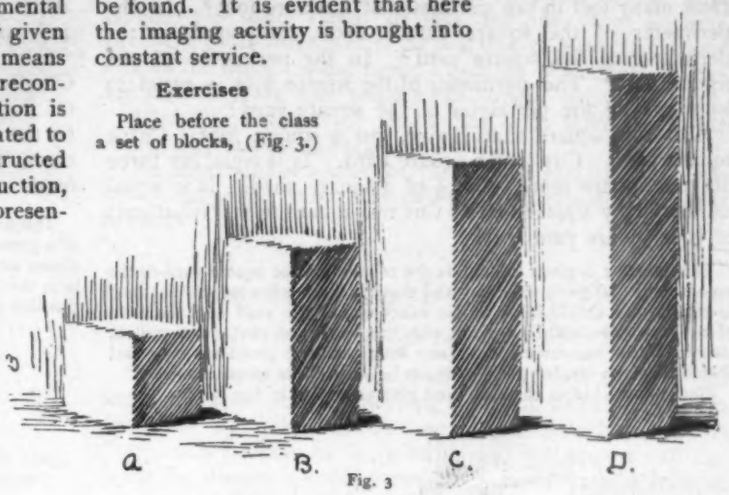


Fig. 3

Give the blocks names, as A, B, C, D. Have the children fix these names.

Name the blocks. What is the first at the right? At the left? Name them in order from right to left; from left to right.

B equals how many A's? C equals how many? D equals how many? A equals what part of each of the other blocks? D equals how many B's? C equals how many? B equals what part of D? What part of C? A equals what part of D? C equals what part of D?

What is the *sum* of C and D? Place A on B. Are they together equal to D? What is the sum of B and A? Prove it. What equals the sum of B and $\frac{3}{4}$ of C? Of C and $\frac{1}{2}$ of B? Find something equal to the sum of A and $\frac{1}{2}$ of C. Of B and $\frac{1}{4}$ of D. Of $\frac{1}{2}$ of D and A. Of $\frac{1}{2}$ of B and $\frac{1}{4}$ of D. Of $\frac{1}{2}$ of B and $\frac{1}{4}$ of D.

D *minus* A equals what? C minus A? B minus A? D minus C? D minus B? C minus B? C is how much less than D? B is how much less than D? Than C? A is how much less than B? Than C? Than D?

Separate B into parts each equal to A. What is each part called? Separate C into parts each equal to A. Separate D into parts equal to A. Equal to B. What is each part called?

Call D 1. What is B? What is A? What is C? Beginning at the right give the new names of the blocks in order (1, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$.) Name them from left to right. Build 1. "$\frac{3}{4}$ and $\frac{1}{4}$ equal 1." Prove it. "$\frac{1}{2}$ and $\frac{3}{4}$ of $\frac{3}{4}$ equal 1." "$\frac{1}{4}$, $\frac{1}{2}$, and $\frac{1}{3}$ of $\frac{3}{4}$ equal 1." "$\frac{3}{4}$ and $\frac{1}{2}$ of $\frac{1}{2}$ equal 1." Build $\frac{3}{4}$. Build $\frac{1}{2}$. $\frac{3}{4}$ is how much less than 1? $\frac{1}{2}$ is how much less than 1? $\frac{3}{4}$? $\frac{1}{4}$ is how much less than each of the others? How many halves equal one? How many three-fourths? How many fourths? How many three-fourths? How many fourths equal a half? How many halves equal three-fourths?

If the largest block is a pound box of candy, what part of a pound is each of the others? If the pound box is worth a quarter, what part of a quarter is each of the others worth? If D is a quart can of oysters what part of a quart is B? A? C? Prove your answers. If B is a can that will hold a pint of milk, how much milk will each of the others hold?

Draw on the blackboard a square yard; also a square foot. (See Fig. 4.)

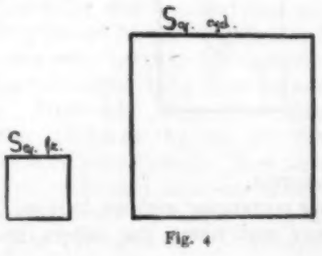


Fig. 4

How long is one side of the square foot? How many times as long is a side of the square yard? How many square feet could be cut out of the square yard? With the pointer divide the square yard into thirds. Each third equals how many square

feet? Two-thirds of the square yard equals how many feet? Three-thirds of the square yard equals how many square feet? If a square foot of gilt paper is worth a nickel, how many nickels is a square yard worth? How many feet in the perimeter of a square foot? In the perimeter of the square yard? How many yards in the perimeter of the square yard? In the perimeter of the square foot? The perimeter of the square foot is equal to what part of the perimeter of the square yard?

Call this square that I give you a square foot. Cut a square yard. Cut $\frac{1}{3}$ of a square yard. Is it equal to three of your square feet? Cut $\frac{2}{3}$ of a square yard. It is equal to how many square feet? Cut two square feet. What part of your square yard is it?

This exercise is given to help fix the relation of the square yard to the square foot. If given only now and then, such an exercise will not tend to confuse the child's ideas of the exact size of the yard and the foot. Many exercises should be given with the foot, yard, pint, quart, gallon, etc., in actual measurement. Many little practical problems may and should be given involving the relations between these measures.

Place objects before the class, and give names, as in Fig 5.

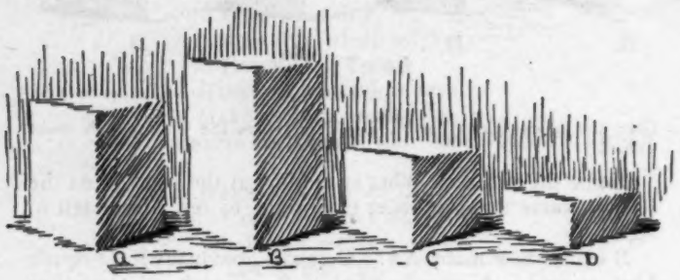


Fig. 5

Call B 1, and name these solids from right to left ($\frac{1}{4}$, $\frac{1}{2}$, 1, $\frac{3}{4}$.) Call A 1, and name them from the left. Call C 1 and name them. If A is one, what are the others? Call C 4, and name the others. Call B 8, and name them from the right without looking. If A is 12, what are the others? If D is 10, how many 10's is A? B?

Constantly change the order of the solids, as well as the values given to them. Place D between B and C, or C to the right of A, and have the values given again. The child should have no opportunity to fix the order or to attach the value to the place occupied by the solid. He should be forced to compare the forms.

Call D 4, and fix the names of the others. Name the solids from the left (12, 16, 8, 4.) Show me how much of 8 equals 4. Show me how much of 12 equals 4. How much equals 8? What part of 16 equals 4? What part equals 8? 12? Give the relation of 4 to each of the others. Look the other way and give the relations of 8 to the others. 16 equals how many 4's? How many 8's? How many 12's? 4 equals what part of 8, of 12, of 16? 8 equals what part of 16, of 12? 12 equals what part of 16? Build 16. Build 12.

Find the ratio 4. "4 equals the ratio of 16 to 4." "4 equals the ratio of 16 to $\frac{1}{3}$ of 12." "4 equals the ratio of 8 to $\frac{1}{2}$ of 4." "4 equals the ration of $\frac{2}{3}$ of 12 to $\frac{1}{2}$ of 4." Find the ratio $\frac{1}{4}$; $\frac{1}{2}$; $\frac{1}{3}$; 2; 2.

Draw rectangles on the blackboard, as in Fig. 6. Have the pupils observe the forms, then name them without looking at them. Then give values to the forms.

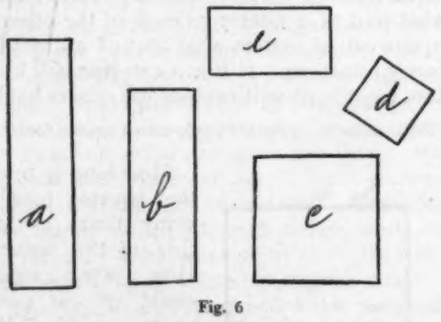


Fig. 6

Tell all you can about these forms.

Call *d* 4, and name the other rectangles without looking. Call *b* 9. Turn the other way and name the others in order. Call *a* 20. What are the others? Look the other way. Let us call the smallest 6. Can you tell what the others are? *e* equals how many 6's? *c* equals how many? *a* equals how many? Look away again. If *e* is 1, what are the others? If *c* is 40, *a* is what? *e* is what part of 40? *d* is what part of 40? *b* is what part?

The perimeter of *d* is what part of the perimeter of *e*? Of *c*? Of *b*? Of *a*? What is the relation of *c* to *b*? Of the perimeter of *c* to that of *d*? Relation of *c* to *a*? Of the perimeter of *c* to that of *a*? If *c* will pasture three cows, how many cows will *a* pasture? If it costs $20 to fence *a*, what part of $20 will fence *c*?

The sets of blocks and other material used should be made the basis of a great many practical problems. The comparison of these forms furnishes an immediate motive for the use of number, but as its ultimate use is in the larger life outside of the school, we should bring in as much as possible of the real world outside.

The Yellow Violet

When beechen buds begin to swell,
And woods the bluebird's warble know,
The yellow violet's modest bell
Peeps from the last year's leaves below.

Ere russet fields their green resume,
Sweet flower, I love, in forest bare,
To meet thee, when thy faint perfume
Alone is in the virgin air.

Of all her train, the hands of Spring
First plant thee in the watery mould,
And I have seen thee blossoming
Beside the snow-bank's edges cold.

Thy parent sun, who bade thee view,
Pale skies, and chilling moisture sip,
Has bathed thee in his own bright hue,
And streaked with jet thy glowing lip.

Oft, in the sunless April day,
Thy early smile has stayed my walk;
But midst the gorgeous blooms of May,
I passed thee on thy humble stalk.

— *Bryant*

Exercise for Nine Pupils

The first pupil brings a seed forward saying :—

"This is the seed that the wind sowed."

Second pupil (bearing a leaf, recites) :—

"This is the leaf, that sprang from the seed that the wind sowed."

Third pupil comes forward with a bud and recites :—

"This is the bud, that followed the leaf, that sprang from the seed that the wind sowed."

Fourth pupil (comes forward, pointing to the sun, recites) :—

"That is the sun that shone on the bud, that followed the leaf, that sprang from the seed that the wind sowed."

Fifth pupil (brings forward a flower and repeats) :—

"This is the flower of beauty rare, that loved the sun, that shone on the bud, that followed the leaf, that sprang from the seed, that the wind sowed."

Sixth pupil :—

"This is the feathery ball so fair, that burst from the flower of beauty rare, that loved the sun, that shone on the bud, that followed the leaf, that sprang from the seed that the wind sowed." — *Youth's Companion*

Little Mary was sent to the store one day to have some syrup sent up for the table. "Does your mother want refined syrup?" asked the merchant. "I think she does," answered Mary. "She is a very nice lady."

One day in the kindergarten little Harry was having a hard time threading his needle. Miss Brown said she thought the eye of the needle must be too small, to which Harry replied: "Yes, Miss Brown, and I fink the fred is too fat."

A Song of Easter

Sing, children, sing!
And the lily censers swing;
Sing that life and joy are waking, and that death no more is king.
Sing the happy, happy tumult of the lowly brightening spring;
Sing, little children, sing!

Sing, children, sing!
Winter wild has taken wing;
Fill the air with the sweet tidings till the frosty echoes ring!
Along the eaves the icicles no longer glittering cling;
And the crocus in the garden lifts its bright face to the sun,
And in the meadows softly the brooks begin to run;
And the golden catkins swing
In the warm airs of the spring;
Sing, little children, sing!

Sing, children, sing!
The lilies white you bring,
In the joyous Easter morning, for hope are blossoming;
And as the earth her shroud of snow from off her breast doth fling,
So may we cast our fetters off in God's eternal spring.

— *Celia Thaxter*

Lowell on Trees

I willingly confess so great a partiality for trees as tempts me to respect a man in exact proportion to his respect for them. He cannot be wholly bad who has a sympathy with what is so innocent and so beautiful. But quite apart from any sentimental consideration, the influence of trees upon climate and rainfall gives to the planting of trees, and to the protection of them where nature has already planted them, a national importance. Our wicked wastfulness and contempt for the teaching of science in this matter will most surely be avenged on our descendants. Nature may not instantly rebuke, but she never forgives the breach of her laws. — *James Russell Lowell*

The Round World

JENNIE M. LOCKE

("An Astronomy Game." See verses in January number of PRIMARY EDUCATION.)

I try to have the children think of the earth as a great ball with a surface of land and water, surrounded by air, lighted by the sun, and with two motions.

To show the two motions we sometimes let a child play he is the Earth and turn from west to east as he goes around some shining object (the sun); while some other child (the moon) runs around him (the earth).

Children from eight to ten years of age enter into the spirit of an illustration readily.

I saw the verses "An Astronomy Game," in PRIMARY EDUCATION and read them aloud to the children.

After a talk with the class, Theresa stood in the center of the floor space with a smiling face; because the sun is always shining even if there are clouds between.

Then we placed seven children around her, each to represent a planet, as described in the verses. The one representing Mercury being nearest the sun and turning in a smaller orbit. The moon must keep going around the Earth-child. Each planet turns in its place and all walk around the sun. Later, to give the idea that all were sweeping on through space, the sun was to move from one side to the other of the room, all of the attendents following while keeping their relative positions.

After this part of the lesson has been talked over the comet may appear as suggested.

Let other children take the parts the next day and you will be surprised to see how well they understand the Solar System.

Civics for the Primary Room

ROSE N. YAWGER New York City

"Now, you know children," said Miss Lowe, after the roll had been called and the morning song had been sung, "that yesterday we talked about one of our little boys who is absent now because he is quite ill and we cannot call because the disease is contagious. Who remembers what kind thing we said we would do for him? Yes, we said we would write a note. I told him your messages — that May said she was sorry he was ill — that Bell wanted him to get well soon — that John said we missed him — that little Ethel sent word he was to shut the disease up in a box and leave it home when he came again as she did not want any of it — that we all sent love. Now I mailed that letter on my way to school. Soon James will receive it. Do you think he will be glad to get it? How will he feel? What will he think of?

"When I had written the letter, I folded it neatly and creased it well, then I went to my box of stationery and took out something which I put the letter in and sealed. Who can come to the board and draw a picture of what I got from the box? Yes. Jesse, you may. We will watch and see if Jesse draws what we think it is. Yes, it was an *envelope*. Soon I put on my coat and hat and started out with the letter, but before I could mail it I must do something else or it would not go. So I took my purse and went to a drug-store and bought a *stamp*.

Now I wonder who can tell me how the letter is going to get to James. Here I have put it in an *iron box* on a street corner and left it, but I know the letter will reach him. What happens to it next? Yes, a *man* takes it out. Are there many or few letters in the box? Are they of slight value do you think or important? Of what is the *bag* made? How is it fastened? Is it open or shut? Why is it shut? Who can draw what the bag is carried away in? Where does the *wagon* go? Why does the letter have to go to the *office*? Do all letters go there? If the letter was going out of town, Was the *car* strong or slight? Why? Is the bag all alone in the car? Who is there? What do the *men* do? Where does the letter go when it reaches the towm where it belongs? How does it get to the house where it belongs?

Now, let us look for a moment at these pictures and think of all the things which happened to this letter from the time it leaves my hands until it reaches the person for whom it is intended. Do many things happen or only a few? Are the letters generally a long or short time getting to the person for whom they are written? Yes. A short time. I think perhaps that James has at this very minute the letter we wrote him. Perhaps he is just opening it now and this is really a very short time considering all the things which have to happen to the letter.

I wonder who it is that does all these things? Let us think. Is it pleasant to have them done? Is it pleasant to think we can send word to our friends and that they can tell what we are thinking even if we do not see them? Yes, I think so. Now who does these things for us? Yes, men do them. Why do they do it? Yes, because they are paid. Now who pays them? Does anyone know? I will tell you.

You remember when we talked about the flag, we said it was what flag? Yes, the American Flag. What did we say the flag belonged to? It belongs to us and is our flag, but

what country do we belong to? Then what country does the flag belong to? Now instead of saying this is the American Flag, if we chose we might say that this is the United States Flag, and when we say that we mean that the flag is the flag of the United States government. Now it is the government which takes care of our letters for us and sees that they reach the person for whom they are intended. It is the government, the same government which owns the flag, which pays the man who makes the stamps, pays the man who collects the letters, pays the man who runs the wagons, pays the men in the post-office who stamps the letters, pays for the transportation of the letters on the trains and sees that they are taken care of when they reach the towns where they belong.

All this is done by whom? Do you think this is a small undertaking or does it mean trouble and care? Is it a pleasant thing to have done? Is it well done? How should we feel toward the government for doing this pleasant thing for us? What may we think of when we see the men going about their duties doing part of these things? Now, I think after talking about this we would like to sing some song about this country which does good things for us. Who will hold the flag while we sing?

(If necessary, enlarge further and give as later exercises in this same line and in the same way talks on the *policeman* and his duties, what the goverment does in the *schools*, etc., etc. I would always make the association between the government, which is more or less of an abstract idea to the children, with the flag which is real and beautiful to them, leading them to see that we should love and respect the government which does so many things for us and does them so well. This work will be hardest to impress just where it is most needed—among the foreign children, but it is needed everywhere.)

Questions Preceding Arbor Day

Amy C. Scammell

Name six uses of trees.

What use has the outer bark of trees? Has the outer bark life?

Which bark is the cause of growth? Then what must it contain?

Why is straw tied around some trees in winter?

Why does a tree die when girdled?

The bark of what two trees is most used for tanning? Name other trees whose bark is so used?

What trees have bark two feet thick?

What and where is the heartwood of the tree? Why does it not grow after the first year?

What wood is the oldest part of the tree?

What and where is the sapwood?

How can you tell the age of a tree?

Of what use to the tree is its pith?

From what is every part of the tree made?

What is the circulation of the sap?

Where are the pipes for the sap to go up?

Where are the pipes in which the sap comes down?

Is the sap always in motion?

Do the different parts of the tree grow from the sap which goes up, or from that which comes down?

Which sap in the sugar maple trees has sugar in it?

Do the two kinds of sap flow separately or do they mix?

Where is the water which the roots take up changed to sap?

What food do trees get from the air?

Where is the sap that goes up changed and made fit for its many uses?

What two things work this change?

What five things do trees need in order to grow?

Where does the *green* of the tree come from?

Why are not the roots and bulbs green?

What is chlorophil?

Where are the pores of trees?

Why are the leaves cool in hottest weather?

How do leaves make the air cooler and make it softer to breathe?

What is taken from the leaves in autumn and stored away in the wood, or in the bulbs and roots?

How does this removal affect the color of the leaves?

Name some forest trees that bud and grow new leaves in August.

Why are forests so dry and barren?

Why is the air of cities drier than that of the country?

Why do not all the buds in branches grow?

What tree first shows signs of spring in New England?

What trees blossom in late autumn?

What trees have flower tassels?

What is a scion? A draft?

Describe the process of grafting.

Name some common uses for bark.

What do the Indians make of birch bark?

What people make cloth from bark?

Name a spice and a medicine bark.

What valuable trees are named in sacred literature, and for what were they used?

In what states do peach trees grow in groves?

Where are large groves of orange trees?

Why do leaves sometimes stay all winter on one or two branches of deciduous trees, leaving the other limbs bare?

The roots of what evergreen tree are used by the Indians to sew their canoes?

What large trees do squirrels often plant?

Name trees that produce gum for commerce?

Name three medicine trees.

Name a fragrant tree much used in cabinet work.

What are the best shade trees?

Name several trees whose wood is used for house building.

Name woods that are used for the inside finish of houses.

What woods are used for timbers of bridges? For masts and spars of ships?

Name woods used in cabinet work. In cheap furniture?

Name the different kinds of wood in your school-building.

Of what woods are household utensils made? Farming tools? Common vehicles?

Do the oaks that you know shed their leaves every year, or are the evergreens?

The fruit of what tree is made up of a single seed?

What wood is used for making lead pencils?

Why is red cedar used for making closets and chests for clothings?

Name three kinds of maple.

In what states are the sugar maples most numerous?

How early in the year are the trees tapped?

Why is the fine grained maple called "bird's eye" maple?

What woods that decay easily on land, are good for mill-wheels and other works under water?

The stems of what wood make fine popguns, and why?

What woods are most used for making toys?

What tree contains mucilage?

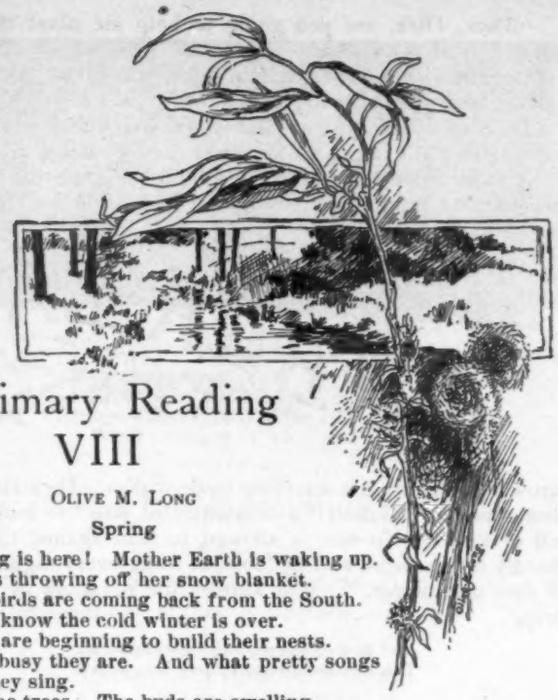
What months are the best for transplanting trees?

What trees have interesting history stories connected with them?

What tree has the poet Longfellow made dear to the school children?

Who wrote the verses beginning, "Woodman, spare that tree."?

Why should Arbor Day be observed in the public schools?

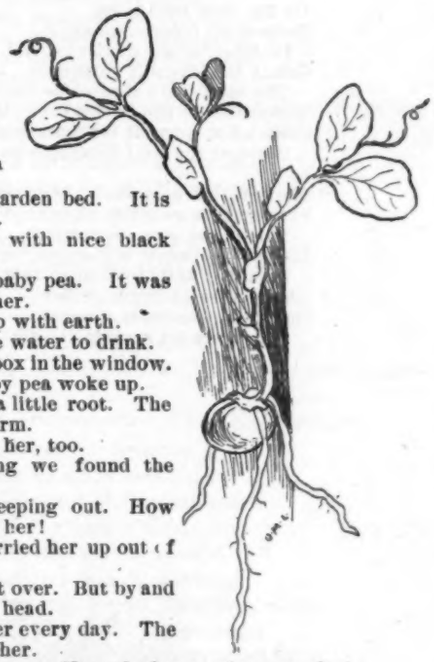


Primary Reading VIII

Olive M. Long

Spring

Spring is here! Mother Earth is waking up.
She is throwing off her snow blanket.
The birds are coming back from the South.
They know the cold winter is over.
They are beginning to build their nests.
How busy they are. And what pretty songs they sing.
See the trees. The buds are swelling.
Some of them are quite green. You can see the little leaves.
They feel the warm sunshine.
It tells them it is time to wake up.
Paul brought something pretty to school to-day.
He found it in the woods. It was a bunch of little baby ferns.
They, too, had been wrapped up all winter in a warm coat.
But now they know it is time to throw it off.
So they are beginning to uncurl.
They push away the soft, warm coat.
They stretch their little arms up to the sun.
And I know something else that is waking up. Do *you* know?
Yes; the beautiful spring flowers!



The Pea

We have a little garden bed. It is in a box.
We filled a box with nice black earth.
Then we planted baby pea. It was a nice soft bed for her.
We covered her up with earth.
We gave her some water to drink.
Then we put the box in the window.
By and by the baby pea woke up.
First she put out a little root. The little root held her firm.
It found food for her, too.
Then one morning we found the earth cracked.
Baby pea was peeping out. How glad we were to see her!
Her little stem carried her up out of the earth.
Her head was bent over. But by and by she lifted up her head.
We gave her water every day. The warm sun shone on her.
It helped her to grow. Now she is growing very fast.
She has many little green leaves.
We cannot call her Baby Pea much longer.

Weave on, weave on, dear mother earth,
Thy carpet warm and bright;
Of warp and woof thou hast no dearth;
And oh, with what delight
We'll mark its folds spread o'er the land
In length and breadth complete;
And praise the kind and loving Hand
That placed it 'neath our feet.

The Boy Who Hated Trees

Alice L. Beckwith

"GOOD-NIGHT Dick. Remember now to wake up with the robins so as to be ready to help me set out our new trees."

"Good-night," answered Dick in a sulky tone, for Dick was decidedly cross.

"Trees, trees, trees!" he mumbled to himself as he began to undress. "I'm so sick of hearing about trees. Miss Morrell has talked 'trees' for a week at school, and now father has bought some old twigs to set out to-morrow and I wanted to go fishing. I just wish I lived in a land where there were no trees. We could get along well enough without them," and with this thought he jumped into bed.

Perhaps Dick had been asleep an hour or more, when he heard the queerest rustling noise, and then a voice called out, "Here he is — the boy who hates trees!"

He sat bolt upright in bed, and there was the strangest procession coming toward him. It was made up of trees.

The Pine and the Elm came first, looking statelier than ever. The Maple and Oak followed, and the Maple's leaves were flushed scarlet, she was so excited. Willow was weeping, and the Poplar trembled all over, she was so nervous.

Next came all the fruit trees, led by Cherry, while Walnut, White Birch, and the Palm were behind.

What did it all mean? Dick was frightened for a minute. It seemed as if every tree he had ever heard of was there, and he wondered how the room could hold them all.

When they had grown quiet the Pine said, "My dear brothers and sisters, here is a boy who hates trees; he cannot see that we are of any use. It is more than I can stand, and I have called this meeting to see what can be done about it. Has anyone anything to say?"

The Cherry looked very sour. "I cannot see as *boys* are of any use," she said. "Many years ago, when Cherry trees were scarce in this country, a boy named George cut down my great-grandfather just to try his new *hatchet*. It would be better if there were no *boys*."

"Yes," answered the White Birch, "boys know so little — always hacking me with knives, and taking off my coat, no matter how cold the weather is!

"I loved *one* boy once, but it was many years ago. He was a little Indian boy. He loved trees. I remember how he stood beside me one warm day and said:

'Give me of your bark, O Birch Tree!
For the summer-time is coming
And the sun is warm in heaven
And you need no white skin wrapper.'

Then he took off my bark so carefully that he did not hurt me a bit. But he is not living now. This boy is not like him!"

"If it had not been for boys I should not be so crooked," spoke up the Apple. "When I was a child, boys used to lean on me and bend me to the ground. My back was weak and it hurt my spine.

"One day a boy climbed up into my branches and broke off one of my limbs. He was a very silly boy, for he wanted green apples. Had my fruit been ripe I would have tossed him down one. How happy we should be if it were not for boys!"

The Maple was very indignant. "This boy here said we were of no use, but it was only this morning that I heard him tease his grandma for a cake of maple sugar."

"He ate it as though he liked it too," answered the Palm. "I saw him; he was fanning himself with one of my leaves."

The Willow wiped her eyes. "Boys, boys, boys!" she said. "I'm so sick of boys! This same boy made a whistle out of one of my children this very night when he went for the cows."

Then a queer tree in the corner spoke in a thick voice. "Ah, we are of no use are we? If it were not for me where would he get the tires for his bicycle? There are his rubber boots, too! Why he uses me every day about something; even on his fishing tackle you will find me. But I've thought of a plan."

The trees all crowded around him, talking very excitedly. "But how shall we do it?" he heard them say.

"Oh," said the Elm, "the wind will help us; she is always our friend."

Before Dick could cry out, he found himself being wafted away by the wind.

"Where am I going?" he called.

"To the land of no trees," they answered, and they bowed and smiled and clapped their hands. Even the willow held up her head long enough to call "Good-by, good-by," and then home and trees were left far behind.

How fast the wind traveled! On and on they went, until suddenly the wind dropped him and went whistling away.

Dick felt really scared now, for he found himself all alone.

"Oh, I'm so hot," he exclaimed. "I wonder where I am." Certainly he had never been in such a place before.

There were no trees nor green grass anywhere in sight. As far as he could see there was only sand, white sand that was so hot and scorching.

"Seems to me I've seen pictures in the geography like this." he said to himself. "I guess it must be a desert. Oh, I was *never* so hot before. I can't sit here. What shall I do?"

He thought of the willow trees on the wide lawn at home. If he could only sit in their cool shade for one little minute! He could see the long shadows they threw on the grass and hear the rustle of the wind in their tops. If he were only there!

He brushed something away that looked very much like a tear, though he told himself it was only because he was so warm.

All at once he noticed a tiny speck far away in the distance. Now it looked larger! Yes, it surely moved and was coming nearer.

What if it were a bear! "There is no tree to climb, and I couldn't run, I'm so tired and it's so hot."

Nearer and nearer it came, moving so slowly. Dick watched it with a beating heart. Now he saw that it was not a single animal but a great many in a line.

"Oh, they are camels!" he cried. "Yes, I know they are. I saw some once at a circus that looked just like them, but what queer looking men are on them!"

They were now very near him, and one of the men beckoned with his hand and said something. "I can't understand him," murmured Dick, "but I guess he means he'll give me a ride." The man helped him on to a camel and they journeyed on. The day wore away and Dick grew so tired.

"The camel joggles me so," he said, "and I am so thirsty I shall die. If they would only stop a minute." What was the trouble? What were they saying? Each man was bowing himself towards the ground, waving his hands and shouting.

"I don't see what they are making all that fuss about. I can't see anything, the sun hurts my eyes so," and Dick covered his eyes with his hand.

Suddenly there was a shout and the camels stood still. Dick lifted his head. Could he believe his eyes? Right before him was a little spot of green grass, a spring of cool water, and one of those things he hated—*a tree!*

Hate a tree! He had never seen anything so *beautiful* in all his life! He fairly tumbled off the camel in his haste to reach it.

The tears ran down his face as he threw his arms around its trunk. "Dear tree," he cried.

"Dick, Dick, are you going to help me plant the new trees?" called his father.

Opening his eyes Dick found himself in his own little room, both arms clasping his pillow.

Dick was soon dressed and down stairs, and so anxious was he to plant trees that he could hardly eat his breakfast.

A week later Miss Morrell said to the grammar school teacher, "I think the trees we planted on Arbor Day will

grow if good care has anything to do with it. Dick Hawkins has appointed himself "a committee of one" to look after all of them. No one is allowed to lean against them or hardly touch them, and he looks at them every night to see if they need water." Miss Morrell did not know of Dick's trip,

And how in one night he learned to see
The wonderful beauty there is in a tree.

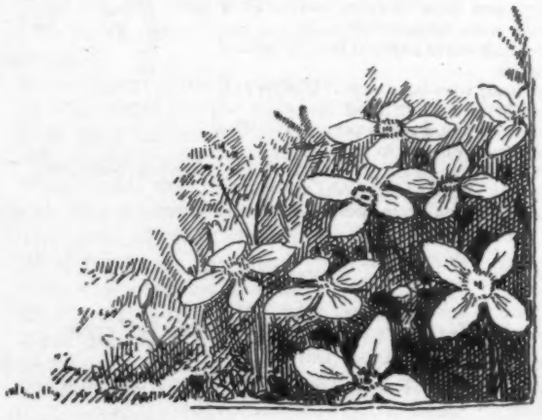
Shower and Flower

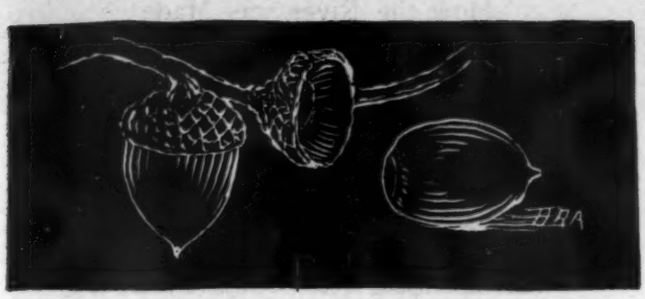
Down the little drops patter,
Making a musical clatter,
Out of the clouds they throng:
Freshness of heaven they scatter
Little dark rootlets among.
"Coming to visit you, Posies!
Open your hearts to us, Roses!"
That is the Raindrops' song.

Up the little seed rises;
Buds of all colors and sizes
Clamber up out of the ground.
Gently the blue sky surprises
The earth with that soft-rushing sound.
"Welcome!"—the brown bees are humming;
"Come! for we wait for your coming!"
Whisper the wild flowers around.

"Shower, it is pleasant to hear you!—
Flower, it is sweet to be near you!"—
This is the song everywhere.
Listen! the music will cheer you!
Raindrop and blossom so fair
Gladly are meeting together
Out in the beautiful weather:—
Oh, the sweet song in the air!

—Lucy Larcom





Acorns

What treasures the old tree drops
Each year from its bronzing boughs!
What a casket of waking life
What a budget of whys and hows!— *Sel.*

The Brownies

Olive E. Dana

An Arbor Day Exercise

First child advancing to front of platform,—

I know a little Brownie, now
Guess what he will be bringing!
No, no, not silver, gems nor gold,
But a blade of green unspringing,—
A sturdy stem, a spreading bough,
An oak, where leaves are clinging;
A wood, with happy nesting birds
In all its branches clinging.
(*Shows an acorn.*)

Response,— Children in concert. This may be spoken or sung.

Let the warm earth be his cradle,
On the hillside brown;
Little brooks be running near it,
May skies bending down.
Gently, gently, stir the soil,
Spare not pains, nor care, nor toil,
And he'll bring you, yes he will,
Woodlands on your hill

Second child, taking same place, while first child drops her acorn into a dainty basket placed on the desk,—

I know a little Brownie, please,
Guess what he will be winning!
Out of his house, all rosy-ceiled,
He eagerly was leaning,—
A giant's tooth had cleft it walls,
Between them intervening;
He almost leaps out of my palm,
His task to be beginning!
(*Holds up her right hand, with an apple-seed on the outspread palm.*)

Third child, coming forward while the second waits,—

I'll you what the treasure is
He for us all is keeping:
A needle-point of faintest green
Out of the dark soil peeping;
A slender shaft, that upward still
In sun and rain is creeping;
Buds opening, leaves unfurling, when
The stupid world is sleeping;
A shower of snowy blooms when May
Her carnival is keeping;
And bins of rosy apples when
The harvests we are reaping!

Response; all, as before,—

Let the warm ground be his cradle,
In the meadow here;
Leave it to the kind earth's keeping
A day, a month, a year!
Gently, gently, stir the soil,
Spare not pains, nor care, nor toil.
And he'll bring you, never fear,
Orchards on your mere!

Fourth child,—

I know a little Brownie, Say
What, think you is his treasure?
You will not? Then I will myself.
Why, first, a world of pleasure
To all the birds; and then, betimes,
White blossoms, without measure;
And then, and then?— why, cherries ripe
To eat, sir, at your leisure!
(*Holds up a cherry stone.*)

Response,—

Let the warm earth be his cradle,
In the dooryard there;
For its fragrant blooms will sweeten
All the summer air.
Gently, gently, stir the soil,
Spare not pains, nor care, nor toil;
And he'll strew before your door
Cherries red, galore!

Fifth child,—

I know a pale-faced Brownie; what,
Think you, his hand is holding?
A little shrub, a little tree,
With tiny leaves unfolding;
And then? Oh, mellow Bartlett pears
For everyone's beholding.
(*Shows a seed of a pear.*)

Response,—

Let the warm earth be his cradle,
In the garden here;
Let him rest there; meanwhile, ever
Of his foes beware.
Gently, gently, stir the soil,
Spare not pains, nor care, nor toil;
By and by, you'll find a pear
In your garden there!

Sixth child,—

I know a Brownie; and I'll tell
What he'll straightway be bringing;
Wide-spreading, leafy branches where
The earliest birds are singing;
A canopy of scented blooms
Their petals pink down-flinging;
A store of honey for the bees,—
You'll hear them, to it winging!
And nuts that bravest play-things make,
With their queer burrs close-clinging!
(*Holds up a horse-chestnut, which she deposits with the other seeds, in the basket.*)

Let the warm earth be his cradle,—
By our school-house door!
We will watch, and tend, and fend him,
Like the rest,— and more!
Gently, gently, stir the soil,
Spare not pains, nor care, nor toil;
For this Brownie,— sturdy sprite,—
Brings us all delight!

The Little Royal Tree-Planter

They had their first Arbor Day in Spain last year. The country was getting bare of trees. The little boy king, Alphonso, went out a few miles from Madrid and planted the first tree, a pine. Then each one of two thousand children from the Madrid schools also set a tree. Each child received a medal with this inscription: "First Arbor Day, Instituted in the reign of Alfonzo XIII., 1896." Hereafter, Arbor Day is to be kept all over Spain, and there are to be children's excursions to the little new forests, to watch how the trees grow. —*Sel.*

A Rain Song

Tinkle, tinkle—
Faster now,
Little raindrops, smite and sprinkle
Cherry bloom and apple bough!
Pelt the elms and show them how
You can dash!
And splash! splash! splash!
While the thunder rolls and mutters, and the lightnings flash and flash!
Then eddy into curls
Of a million misty swirls,
And thread the air with silver, and embroider it with pearls!

(A quantity of these outline trees may be hektographed and used for reading, writing and spelling on Arbor day)

The Teacher, and the Tiger

The elder Dr. Tyng was very fond of children. He was preaching one Sunday in his Sunday-school room to his children. He was not an evolutionist; he lived before the doctrine of evolution was known; and as he was a very orthodox clergyman, it is not probable that he would have been an evolutionists if it had been known. Nevertheless, he was preaching evolution without knowing it. He said to the children: "There is the serpent, who goes in sinuous, crooked ways — that is the liar; there is the hog, who eats and eats, and cares not for anything but eating — that is the glutton; there is the little boy or girl who likes to pass before the glass and see how beautiful he or she is — that is the peacock; and there is the passionate child who cannot control his temper and flames out on every provocation — that is the tiger." When he had finished his sermon he took his hymn-book and announced the hymn, and the children started not all together, and his face flushed up, and he struck the book a blow, and cried out, "Stop! stop! stop!" and a little girl back in the room, standing on the pew, reached forward, and, pointing her finger, called out, "Tiger!" Dr. Tyng laid down his book, walked down the aisle, and took the little girl in his arms. He loved little children. No girl would have come to his arms under those circumstances if she had not known his love. He brought her back to the platform, and, holding her in his arms, he said, "Children, she has told the truth; I have been fighting the tiger all my life, and I have not got control of him yet; do not let the tiger get control over you."

Arabian Proverb:—"With the planting of a tree, a blessing comes to him who drops the seed."

"Tommy, who was Joan of Arc?" asked the teacher.

"Noah's wife," said Tommy, who is considered great at guessing.

How the River was Made

A tiny drop
Of rain splashed down on the mountain top
One April day. Then it joined two more
And they trickled over the tufted floor,
Gathering strength as they raced down hill;
When lo, from their union there sprang a rill,
That cadenced quick to the musical breeze
That played with the leaves of the lofty trees.
And then, as its wandering way it took,
The rill grew strong, and became a brook,
And the brook danced on, and the sunbeams bright
Made sport as they played in its mellow light;
While the dimpling pebbles were filled with glee
And nudged each other incessantly.
But the hastening stream bid them all good by,
And flowed down, down, 'neath the changing sky.
And grew to a river, broad and deep,
With a stately stride and a god-like sweep.
And the sun burned down, but the river flowed,
Too strong to care how the hot orb glowed:
Flowed out to the deep and the changeless sea.

— *Sel.*

School Luncheons

Two years ago the Boston School Board encouraged the establishment of cheap luncheons in the schools. Up to the present time this has been considered an experiment. It is now conceded that the experimental stage is passed, and that cheap, nutritious school luncheons are a success. The luncheons served cost five and ten cents. The management encourage the ten-cent luncheon. For ten cents soups are served, bread, butter, and crackers and a light cake, and ice-cream, fresh fruits, and milk or cocoa. In Somerville, Mass., luncheons are served that cost from two to ten cents. Two cents buys a glass of milk or a cup of cocoa and a sandwich made of good bread. The enemy of the cheap school luncheons is the pieman. In Boston the pieman's wagon is a daily visitor at the schools. In Fitchburg the cheap school luncheons are a success. At Manchester, N. H., the struggle between the pieman and the nutritious, cheap school luncheon managers was very severe, but the luncheon managers were triumphant, and the cheap, nutritive school luncheon is well established in that city. Good Government Club E, of New York City, which gives its attention to the public schools of the city and the school life of the children, has advocated that, under the new charter, saloons, tobacco and candy stores should not be located within two hundred feet of the schools.

O, Fearless Little Brook

O, fearless little brook, fling out your utmost forces,
The greening cresses hasten at your shining hem!
Beside, that every heart may drink joy at its sources,
Bid all fair weeds come forth to our full need of them.

From Miss Cherry's sewing cards

And Robin, is it you whose song comes up the hollow?
Trill upon trill, a song whose meaning I would follow,
Again, as when a child, full wond'ringly I listen,
While o'er the timid grass the tears of April glisten;
The clouds bend low in sorrow:
Loved Robin, that you borrow
Joy from the darksome day wherewith to bid "Goodmorrow!"

— *A Bank of Violets*

The Editor's Page

Address Editor at 1300 Davis St., Evanston, Ill.

Arbor Day

"I wonder what I can have new for Arbor day?" Does any teacher say that in half despair? Does she feel that there *is* "nothing new" for Arbor day? Well, there are two consolatory facts: first, that in all probability the teacher has a new class of children; second, the world is the same and the trees thereof. Nobody expects the teacher (or the editor) to create a new set of trees or a new species of vegetation. There is enough undiscovered, untold truth about a single oak or apple tree to "last" through all the Arbor days that will dawn upon this earth during our mortal lives. It is new eyes we want, new powers of observation, new hearts to appreciate. If we can see one new evidence of Nature's great care and protection of the baby buds in the coming Arbor Day, we shall have grown a little nearer to Nature's heart and penetrated a little deeper into the Divine purpose in creation. Do not look for something new. Do not feel that Arbor Day consists solely in "getting up" an occasion for the children. All that is well, but that which makes Arbor Day worth the observance goes deeper than that.

Froebel's Birthday, April 21

Do not forget this, teachers. Many of your children who have been to the kindergarten have been accustomed to "keep" this day in a most delightful way. They will miss it if it passes unnoticed. There is no reason why primary teachers should regard Froebel as a lover and worker for children, *only to a certain age*. It will be a blessed day for all primary schools when every primary teacher has first completed a full course in a genuine kindergarten and is able to bring its spirit and philosophy to her primary work.

Creditable

Twelve hundred teachers who are engaged in daily work in Chicago schools are taking outside study in some form under the direction of Chicago University. President Harper, as a member of the Chicago Board of Education, proposes the establishment of a teachers' college for the benefit of Chicago teachers.

Teachers Set Type

This, as far as we know, is a novel feature of the schools of Evanston, Ill. Supt. H. H. Kingsley, of that city, convinced the Board of Education that a printing press would be a good thing for the superintendent to have in his back office. After it became an established thing the teachers brought some of their blackboard work and stole a few minutes after school in putting it in type for the new printing press. The custom threatened to become too popular for the office space, not to say anything about the superintendent's peace of mind. He arose to the emergency and bought several fonts of type for the use of these teachers in their own buildings. This solved the problem and Evanston teachers can now furnish their own supplementary reading in most independent fashion. The type-setting and printing is well done, too. A specimen of the work lies before me and I regret there is not space to print it all. This specimen is "The White Rabbit," by first grade pupils, and no better supplementary reading was ever furnished by the children or for the children. Who would not be an Evanston teacher with an Evanston superintendent like unto this one?

Good Fortune

It is a matter of congratulation that we have been able to secure Miss Katharine Beebe to bring her efficient help to the columns of this paper. Those who are familiar with Miss Beebe's books will know her universal interest in little children, whether at home, in the primary school-rooms or in the kindergarten — her special province. Her Game of Trees in this number is a delightful, original little creation *adapted to primary rooms*, where there is not much space and no room for a circle. "Suggestions for Arbor Day" will be found to be valuable, and so many kinds of teachers are included in these "Suggestions" that we do not see how any individual teacher can feel neglected, as she must be included in some of these many "supposed" classes.

"Dear *Sir*"

After nearly five years of motherly brooding over the interests of this paper, the editor is frequently addressed in this fashion.

"*Editor of* PRIMARY EDUCATION,
Dear Sir."

A groan is heard in the sanctum after such an address. If the readers of this paper do not know and do not *feel* that the editor is a woman and a sister-teacher by this time, then the doctrine of *radiation* is a dead failure. It is inexplainable. The editor has never known one ambitious (?) desire to seem either manly or mannish, and she fails to appreciate the implied compliment of strongmindedness in that "*Sir.*" She is not grateful. She is only puzzled.

Folding Manuscript

Contributors who are aggrieved because their carefully folded, or unfolded manuscript is returned folded or newly-creased, can prevent this by using ordinary sized envelopes. Æsthetic envelopes and square envelopes are not a marked feature of the editorial desk. The use of ordinary sized note paper and plain commonplace envelopes will insure the return of manuscript without refolding.

Books

James Whitcomb Riley's new book, "A Child-World" (The Bowen-Merrill Co., Indianapolis), will be an enjoyable book to take up at odd hours. It is in verse with now and then a separate poem full of pathos and insight into child life. These solo-poems are copied in various books and magazines and have an element of popularity. "The Child-heart-mild-heart" is the one seen oftenest. Price, $1.25. "Tommy-Anne," by Mable Osgood Wright (The Macmillan Co., N. Y. City), is a delightful book for spring nature book. Tommy-Anne is a girl who talks with all nature, animate and inanimate. Price, $1.50. Miss Cyr has a Third Reader (Ginn & Co., Boston), that is worth owning. "Stories of Red Children," by Dorothy Brooks (Educational Pub. Co., Boston), is full of Indian stories and woodsy flavor. A great help in teaching Hiawatha. "Nature's Byways," by Nellie Walton Ford (The Morse Co., N. Y. City), is a little supplementary reader in single sentences and coarse type that teachers of youngest children will find very useful. Sorry we cannot give the prices of some of these books, but they have not been given to us.

Where?

Can anybody tell the editor where to get a little prism to hang at her window to bring Iris to her room?

Correction

"Imaging and Word-Building" in February number of PRIMARY EDUCATION should have been credited to Miss Belle Thomas, the writer of the former articles upon the same subject.

April! April! Are You Here?

April! April! are you here?
Oh, how fresh the wind is blowing!
See! the sky is bright and clear,
Oh, how green the grass is growing!
April! April! are you here?

April! April! is it you?
See how fair the flowers are springing!
Sun is warm and brooks are clear,
Oh, how glad the birds are singing!
April! April! is it you?

April! April! you are here!
Though your smiling turn to weeping,
Though you skies grow cold and drear,
Though your gentle winds are sleeping
April! April! you are here!

— Dora Read Goodale

Sir Robin

Rollicking robin is here again.
What does he care for the April rain?
Care for it? Glad of it. Doesn't he know
That the April rain carries off the snow,
And coaxes out leaves to shadow his nest,
And washes his pretty red Easter vest,
And makes the juice of the cherry sweet,
For his hungry little robins to eat?
"Ha! ha! ha!" hear the jolly bird laugh,
"That isn't the best of the story, by half!"

Gentleman Robin, he walks up and down,
Dressed in orange-tawny and black and brown.
Though his eye is so proud and his step so firm,
He can always stoop to pick up a worm.
With a twist of his head, and a strut and a hop,
To his Robin-wife in the peach-tree top,
Chirping her heart out, he calls: "My dear,
You don't earn your living! Come here! Come here!
Ha! ha! ha! Life is lovely and sweet;
But what would it be if we'd nothing to eat?"

Robin, Sir Robin, gay, red-vested knight,
Now you have come to us, summer's in sight.
You never dream of the wonders you bring,—
Visions that follow the flash of your wing.
How all the beautiful By-and-by
Around you and after you seems to fly!
Sing on, or eat on, as pleases your mind!
Well have you earned every morsel you find.
"Ay! Ha! ha! ha!" whistles robin. "My dear,
Let us all take our own choice of good cheer!"

— Lucy Larcom

Concert Recitation

Who likes the rain?
"I," said the duck, "I call it fun,
For I have my little rubbers on;
They make a cunning three-toed track
In the soft, cool mud; quack! quack?"

"I hope 'twill pour, I hope 'twill pour,"
Croaked the tree-toad from his gray bark door;
"For with a broad leaf for a roof
I'm perfectly weatherproof."

Sang the brook, "I laugh at every drop,
And wish it would never need to stop
Until a broad river I' grow to be,
And could find my way out to the sea." *— Sel.*

Fairy Umbrellas — Toadstools

The wet East Wind had called to the Rain,
"Come down, little drops, to the April flowers;"
And over the grass and the sleeping grain,
And into the street they swept in showers.

They tapped at each door and called, "Come up!
For the bleak cold wind and the snow are gone;
Arbutus is lifting her perfumed cup
And the grass is carpeting all the lawn."

But the fairies that lived in the quiet wood
All wore their new spring bonnets that day,
So they raised their umbrellas as quick as they could
And under the trees went trooping away.

And the people said, when they saw them there,
The fairy umbrellas out in the rain,
"Oh, spring has come, so sweet and so fair,
For there are those little odd toadstools again."

— Well Spring

At Easter

I have heard that Mother Nature,
A dame so wise and kind,
Is alway spinning a sweet beginning
For the lives she keeps in mind,
She tends the snow-drop hardy,
And the jonquil's merry race,
She lines her pillows with pussy-willows,
And kisses the pansy's face

(Let any age be substituted)

You see I am just eleven
I have lots of thing to do;
And all our learning is well worth earning,
If what folks tell be true.
I am glad, so glad, 'tis Easter,
When the tiny bluebells chime;
But somehow, eleven is so near heaven,
I am happy most all the time.

— Margaret Sangster in Little Knights and Ladies

"April comes next, with her soft, warm showers;
Out of the ground come the beautiful flowers.
And this month brings us Frœbel's birthday;
He thought of this 'garten' in which we play."

Dialogue for Arbor Day

ELEANOR ROOT

(*Ida and Sadie sit at a table working upon their arithmetic problems. Tom is reading. Enter Jennie excitedly, taking off her things as she talks.*)

Jennie. I just met Miss Brownlee and she asked me if we — all of us — wouldn't get up a dialogue or something for school Arbor Day. She said it would be *such* a help to her, for she was so busy with her examination papers and would be for some time. And she said she knew it would be a success, because our Christmas dialogue was so good.

Tom. H'm. Count *me* out. I said if I ever lived through that Christmas combination, you'd never get me into anything of the kind again!

Ida. O, but Tom, *this* will be so different.

Jennie. Yes, indeed, — and I told Miss Brownlee that we'd do something.

Tom (*resignedly.*) O, well, if it's all cut and dried and my *word* given I suppose I'll have to! What are you going to do?

Jennie. That's just the trouble. We'll have to rack our brains and hunt up things like everything. You see, they haven't had Arbor Day for years and years and centuries like the other special days — and there isn't much to find out about it.

Ida. My teacher said that people used to cut down trees, without ever stopping to think or care about the result, and that in some places there were stretches of hundreds of miles without a tree where once there were vast forests. And she said, too, that it made a great difference in the rainfall. I don't understand how, exactly, but there's danger of a country becoming a desert if the trees are all chopped down.

Tom (*rising and striking an attitude.*) Here, *I'll* go into the philosophy of the thing. Girls can't philosophize — I read once that it wasn't in 'em! It's this way: When there aren't any trees to hold the moisture it all evaporates and so there *isn't* any moisture, and — and — so it doesn't rain.

Ida (*ironically.*) Now we understand perfectly! (*The girls laugh good-naturedly.*)

Jennie. Perhaps it was made plainer to you, Tom, than it was to us.

Tom (*stoutly.*) Well, the *gist* of it's there, anyway.

Sadie (*clapping her hands.*) O, I've just thought of something! Don't you know that dear little Dryad-piece mamma read to us? — The Dryads in the trees? Wouldn't it be perfectly lovely if we could have trees or trunks of trees on the stage, and get in them — and talk — and everything!

Tom. Have a regular Dryad-dialogue. No, thank you. If you're going to put in fancy touches like that *I'll* be excused. Golden curls wouldn't look bad on a Dryad (*he pulls her yellow curls*), but how about this? (*He tousles up his dark hair and scowls fiercely. The girls laugh. He joins in with them.*)

Jennie. No, that wouldn't do, surely, — and besides I think Miss Brownlee wants us to have something that will *teach* more. *That* would be simply amusing.

Tom. O, it would, would it? (*He takes a little hand mirror from his pocket and ruffles up his hair again, making faces the while at himself.*)

Ida. See here! If we're going to do anything, we've got to get at it. I call this meeting to order. (*She raps sharply on the table.*)

Tom (*rising.*) Miss President.

Ida. Mr. Elkins.

Tom. I move the whole thing be laid on the shelf —

Girls (*reproachfully.*) Tom!

Tom. — Until I can get a book I got at the library last night. There's a whole chapter in it about trees. I just happened to think of it. (*He leaves the room hurriedly and returns in a moment turning the leaves of a large volume.*) There — here it is. (*Reads.*)

Use of Trees

"Trees perform their chief economical service by preventing too rapid evaporation. It is a common error that the sun's rays are the first source of evaporation; and many persons ignorantly imagine that because a locality is sunny it is sure to be dry. Now the wind has vastly more to do with drought and evaporation than the sun. Air at rest will take up only a limited quantity of moisture and is speedily saturated, but air in motion is never satisfied and is constantly abstracting moisture from the soil. It is not the character of the soil but the constant and unobstructed motion of the air which reduces open land to barrenness. Almost anywhere on the desert between Cairo and Gaza, the sterile waste might be turned to greenness simply by being enclosed. It is not wholly true that the palm trees are in the oases because the springs of water are there. The springs are there because the palm trees are there beside them. Cut away the palm trees and the springs would soon become dry."

Say, isn't that a whole lot — and isn't it good? And see here! (*Reads again.*)

"There should be on every farm of reasonable size an annual planting as well as an annual cutting of trees. As your shrewd fisherman takes care to put a second net across the river before the first is drawn out so that no fish shall escape, so your shrewd farmer, while he draws his piler from one side of his wood off to the brick yard, ought to know that a new forest is growing up on the other side."

And here's something about the *healthfulness* of having trees about. (*Reads.*)

"Trees in a Hygienic Point of View

One of the most striking examples of the use of trees in promoting and preserving health came to my notice a few years ago. A gentleman, along the extreme edge of whose garden ran a ditch, received no injury from its proximity until, in an unfortunate hour, a thick row of elders which grew upon the bank was cut down. Almost immediately low fever attacked the family, and not only reduced them to a state of great weakness but returned at short intervals until they moved to another locality."

Jennie. That's just splendid, Tom!

Ida. *Isn't* it!

Sadie (*taking the book from Tom and looking at it eagerly.*) Well, now I've got another suggestion — and maybe you won't laugh at *this!* Let's each one of us look up some particular thing about trees and have it Arbor Day. Here is a whole list of their uses at the end of the chapter. (*Reads.*)

"Beauty of Trees, Results of Destroying Them"

and there's a lot under that about deserts, bad air, ruined landscapes, floods, etc., etc.

"Advantages"

and under that — I'll just skip around — purifying the springs of water when their roots penetrate, purifying the air, protection for birds and animals, equalizing the heat of the atmosphere, keeping —

Tom. Say, that's better than any *Dryad-business*, isn't it!

Sadie (*emphatically.*) Yes, it is!

Ida. Well, now, let's decide what each one's going to have.

All. All right!

(*Curtain falls.*)

April's Answer

"April, pretty April,
With a crocus in your gown,
Since smiles are so becoming,
I wonder that you frown."

From her face coquettish April
A gauzy cloud-veil drew.
"I have often thought," she answered,
"The self-same thing of you."

— *Wide Awake*

What?

"What do you think I heard
When I opened my window wide?
Tones so silvery, sweet and strong,
Notes so flute-like, with trills so long —
The little singer, in coat of blue,
Sat on a bough — then away he flew.
With his dear little mate at his side."

A Game of Trees for Arbor Day

KATHARINE BEEBE

Apple Trees

This is the apple a little child found.[1]
This is the core which he put in the ground.[2]
These are the seeds all hidden away,[3]
Wishing and waiting for some sunny day.
Here is an orchard of young apple trees,[4]
Covered with blossoms and humming with bees,[5]
These are the branches pulled down by the weight[6]
Of the finest ripe apples that ever you ate.[7]

1 Children sitting in seats form apple with hands.
2 Children get out of seats, stoop down, and make the motions of digging and planting.
3 Children sit on floor beside desks with bent head and closed eyes.
4 Rise slowly to feet.
5 Lift arms and spread fingers. Children make the sounds of humming bees before going on with the next two lines.
6 Arms straight out and hands drooping.
7 Drop arms heavily.

Oak Trees

This is an acorn so smooth and so brown,[1]
Which from a great oak tree came rattling down.[2]
Now it is hiding deep down in the grass,[3]
Waiting for ice-time and snow-time to pass.
Here are some baby oaks trying to grow,[4]
Here are young saplings all placed in a row,[5]
These are tall oak trees in red leaves and brown,[6]
Hear how *their* acorns come rattling down.[7]

1 Children sitting in seats form acorns with fingers.
2 Children make a single tap on desks.
3 Children sit on floor beside desks with bent heads.
4 Sit upright.
5 Stand.
6 Stand (on seats if practical) with arms reaching up.
7 Children take seats and tap briskly on desks.

Elm Trees

Now we are elm seeds, such wee little things![1]
Fluttering down on our tiny brown wings.[2]
Now we are nestling down under the trees,[3]
And soon baby elm leaves will wave in the breeze.[4]
Slowly, so slowly, the little elms grow,[5]
Spreading their branches out gracefully, so![6]
See, they are arching high over your heads,[7]
A home for the oriole's wee swinging beds.[8]

1 Children in seats.
2 Sit down on floor softly.
3 Bend heads.
4 Raise heads and wave hands softly.
5 Rise slowly to feet. (Stand on seats if practical.)
6 Spread arms out.
7 Join hands across aisles.
8 Swing joined hands gently, drop hands to sides, and remain standing for next verse.

Maple Trees

Did you hear the warm South wind come whispering by?[1]
Did you see the gay maple seeds, see them all fly?
Now they are sleeping! Do let them alone![2]
Let them take naps just wherever they've blown.
If you do, you'll see maple trees coming up — so![3]
As seedling and saplings and larger trees grow.
Then some other season, as time passes by,[4]
You'll see more maple seeds ready to fly.

1 Before beginning this verse the children imitate the sound of a soft wind, run swiftly and softly around the room and on coming back to place sit quietly down on the floor beside their desks.
2 Bend heads and close eyes.
3 Rise slowly to feet and spread arms out and up.
4 After repeating the last line the children run again swiftly and softly around the room and back to places. Take seats.

First Up

A brave little dandelion woke from his nap,
And hunted around in the dark for his cap.
"I'm certain," he muttered, "it ought to be here,
In the very same corner I left it last year."

He poked all about in the dirt and the dark
For the same little hat that he wore in the ark;
For fashions may vary with people and clime,
But dandelions wear the same hats all the time.

"What's o'clock?" and he paused while he counted the fuzz
That had crept through his locks as old age always does;
Then he settled himself to pluck out the old feathers
That had done so much service in all sort of weathers.

Rather frowzy he looked getting into his hat,
But he knew that the rains would take care of all that
If he only were up; so he pulled on his boots,
And began to push up from his tough little roots.

Kept pushing, still cheerful, still hopeful, till,— push!
He rose to the surface close by the old bush;
With the frost scarcely out and the ground hardly mellow,
Here he is on the top now, the brave little fellow!

The first dandelion! Well may we delight,
And call all the children to see the glad sight!
For of all the bright prophets of hope and of spring,
The golden-crowned dandelion surely is king!

— *Youth's Companion*

A-p-r

This A-p-r, is for April Fool:—
Just season it well with the Golden Rule,
And there's plenty of fun from sun to sun
For every one at home and at school.
It stands for the dear little violets, too,
All of the truest, bluest blue;
For little pink darlings under the leaves;
For spattered windows and dripping eaves;
For mud to mix into elegant pies;
For fuzzy chicks with their beady eyes;
For early gardening far and near;
For the workers gay on Arbor Day. — *Sel.*

Arbor Day March

(Children singing this selection could be provided with small flags to be waved during the singing of the words "Hurrah!")

(AIR — "Marching Through Georgia.")

Celebrate the Arbor Day
With march and song and cheer,
For the season comes to us
But once in ev'ry year;
Should we not remember it
And make the mem'ry dear—
Memories sweet for this May day?

CHORUS:

Hurrah! hurrah! the Arbor Day is here;
Hurrah! hurrah! it gladdens ev'ry year;
So we plant a young tree on this blithesome Arbor Day,
While we are singing for gladness.

Flow'rs are blooming all around—
Are blooming on this day,
And the trees with verdure clad,
Welcome the month of May,
Making earth a garden fair
To hail the Arbor Day,
Clothing all Nature with gladness.

The Oak of our Fathers to Freedom was dear;
Its leaves were her crown, and its wood was her spear.
— *Robert Southey*

The Robin

Little prophet on the tree,
Flying to and fro,
Will you kindly tell to me
How you come to know
When the happy spring must be,
After frost and snow?
How is it you can see
When God's flowers grow?

— *Every Other Sunday*

Spring Fashions

They say bright red and purple will be the "latest thing."
And worn by all the tulips in garden-beds this spring.
The hyacinths and crocuses prefer much paler shades;
The daffodils were yellow — the color seldom fades.

Of course, for small field-blooming the styles are not so bright,
The daisies still continue to dress in simple white;
And clovers wear last season's shades — all honor to their pluck —
With now and then an extra leaf to bring the finder luck.—

— *Sel.*

Arbor Day Song

(TUNE: "Battle Hymn of the Republic," or "John Brown")

In the ground we plant the rootlets of the future forest trees,
And we leave the slender saplings to the sunshine and the breeze
And the gentle rains of springtime — and we trust that all of these
Will make the trees go on!

CHORUS:

Let us plant the trees together,
In the mild and balmy weather.
May their branches wave forever!
God make the trees go on!

In the friendly mold we muffle all the tender little feet,
They will creep into earth's bosom drinking juices strong and deep,
They will pour life-giving currents, making twig and leaf complete,
While the trees are growing on!

CHORUS:

God will send his gracious sunshine, and his benisons of dew,
And the sky shall bend above them with its depths of arching blue,
And the rain refresh their life-blood with a richness ever new—
The trees will still grow on.

CHORUS:

Let the raging storm but strengthen as the branches toss on high;
Let the trembling leaves, as praying hands, be lifted to the sky;
Let the thankful birds that haunt them swell the chorus joyfully.
And the trees grow grandly on!

CHORUS: — *Sara F. Archer*

Who?

Well, who do you think has come?
The birds have begun to sing,
The willows to bud, and the lambs to play,
The grass to grow greener every day,
The brook to sparkle, and dance and leap,
And the flowers to wake from their winter's sleep;
What is it that has come?

— *Kate Lawrence*

A Spring Song

Old Mother Earth woke up from her sleep,
And found she was cold and bare;
The winter was over, the spring was near,
And she had not a dress to wear.
"Alas!" she sighed with great dismay,
"Oh, where shall I get my clothes?
There's not a place to buy a suit,
And a dressmaker no one knows."

"I'll make you a dress," said the springing grass,
Just looking above the ground,
"A dress of green of the loveliest sheen,
To cover you all around."
"And we," said the dandelions gay,
"Will dot it with yellow bright."
"I'll make it a fringe," said forget-me-not,
"Of blue, very soft and light."

"We'll embroider the front,
With a lovely purple hue."
"And we," said the roses, "will make you a crown
Of red, jeweled over with dew."
"And we'll be your gems," said a voice from the shade,
Where the ladies' ear-drops live —
"Orange is the color for any queen
And the best we have to give."

Old Mother earth was thankful and glad,
As she put on her dress so gay;
And that is the reason, my little ones,
She is looking so lovely to-day.

— *Children's Friend and Kindergarten*

April

Tell me bonny April maiden
Why those often-falling tears?
With what grief have you been laden
All these many, many years?
Send the tear-drops all a-Maying.
Give us smiles and give us kisses;
Then you'll hear the earth-folk saying,
"What a lovely April this is!"

— *Emma C. Dowd*

April's Way

March rode forth with his sword and drum,
And he called to the flowers, "Arise! Arise!"
But the violet answered with meek, shut eyes,
"Coax us a little and we will come!"

But he could not coax — he could only chide,
And no bud will bloom at a harsh command;
He beat his drum till he shook the land,
And the little pale flowers did naught but hide.

Lovingly calling, name by name,
April tripped thro' the meadows bare:
"Windflower! violet! snowdrop fair!"
She coaxed them a little and so they came.

— *Ida Whipple Benham*

Sun, Wind, Rain and Children

The jolly sun looked down one day
And said: "What can it be
Those children all are doing there?
Ah yes!—they plant a tree."

The summer wind in wandering by
Refreshing coolness made;
And then a gentle rain-cloud paused
To cast a grateful shade.

The three a genial message:
"Good friends, plant you your best
With careful, honest, loving hearts,
And we will do the rest."

— *S. D.*

Song of the Grass Blades

Peeping, peeping here and there,
In lawns and meadows everywhere
Coming up to find the spring,
And hear the robin red-breast sing.
Creeping under children's feet,
Glancing at the violet sweet,
Growing into tiny bowers,
For the dainty meadow flowers.
We are small, but think a minute
Of a world with no grass in it? — *Sel.*

Song

AIR: "Auld Lang Syne"

The gifts of Nature brighten earth,
And make her garden gay,
They give a cheery greeting bright
On this — our Arbor Day.
The trees put forth their greenest leaves,
On this — our Arbor Day.
And welcome now the chosen tree,
That we shall plant to-day.

— *Selected*

Mental Arithmetic*

What additions of two figures will produce 4? 5? 6?
What additions of two figures will produce 7? 8? 9?
What additions of two figures will produce 10? 11? 12?
What additions of two figures will produce 13? 14?
What additions of two figures will produce 15? 16?
What addition of two figures will produce 17? 18?
How many are —

8 and 9?	6 and 9?	8 and 5?	7 and 6?
7 and 8?	7 and 9?	8 and 6?	9 and 5?

John had 10 apples, and gave 4 of them away; how many apples had he remaining?

Harold paid 12 cents for a book, and 4 cents for a pencil; how much more did he pay for the book than for the pencil?

A boy had 13 marbles, and lost 5 of them; how many marbles had he remaining?

Amos planted 14 trees, and 5 of them died; how many of the trees grew?

How many are —

4 from 4?	4 from 9?	5 from 5?	5 from 10?
4 from 5?	4 from 10?	5 from 6?	5 from 11?
4 from 6?	4 from 11?	5 from 7?	5 from 12?

There were 12 birds on a tree, and 6 of them flew away how many birds remained?

Harry had 13 marbles, and lost 6 of them; how many marbles had he remaining?

James had 14 apples, and gave 7 of them away; how many apples had he remaining?

Arthur picked 15 quarts of berries, and sold 7 of them; how many cents had he remaining?

William had 14 cents, and spent 6 of them; how many cents had he remaining?

How many are —

6 from 6?	6 from 11?	7 from 7?	7 from 12?
6 from 7?	6 from 12?	7 from 8?	7 from 13?

A farmer had 12 sheep, and sold 8 of them; how many sheep had he remaining?

Anna had 15 dollars, and spent 9 of them; how many dollars had she remaining?

Frank had 16 marbles, and lost 8 of them; how many marbles had he remaining?

A drover had 17 cattle, and sold 9 of them; how many cattle had he remaining?

A boy had 15 marbles, and lost 8 of them; how many marbles had he remaining?

A lady had 13 dollars, and spent 9 of them; how many dollars had she remaining?

Charles had 14 oranges, and gave 8 of them to his brother; how many oranges had he remaining?

What will 4 books cost, at 5 dollars apiece?
What will 4 tops cost, at 8 cents apiece?
What will 4 fur caps cost, at 6 dollars apiece?
What will 4 guns cost, at 9 dollars apiece?
What will 5 cards cost, at 6 cents apiece?
What will 5 melons cost, at 7 cents apiece?
What will 5 tables cost, at 8 dollars apiece?
What will 5 pigeons cost, at 9 cents apiece?
How many are —

5 times 1?	5 times 4?	5 times 7?
5 times 2?	4 times 5?	5 times 8?
5 times 3?	5 times 6?	5 times 9?

What will 6 melons cost, at 7 cents apiece?
What will 6 balls cost, at 8 cents apiece?
What will 8 dogs cost, at 5 dollars apiece?
What will 8 sheep cost, at 6 dollars apiece?
What will 8 pigs cost, at 7 dollars apiece?
What will 8 calves cost, at 8 dollars apiece?
What will 7 pictures cost, at 8 cents apiece?
What will 6 books cost, at 7 cents apiece?
What will 7 vases cost, at 7 dollars apiece?
What will 7 hats cost, at 5 dollars apiece?

*From *Hull's Mental Arithmetic*. By permission of E. H. Butler & Co.

Sarah has 8 books, Amanda has 12, and Margaret has 13; how many books do they together have?

A boy found 9 eggs in one nest, 11 in another, and 14 in another; how many eggs did he find?

A boy went to a store and bought a pound of sugar for 7 cents, a brush for 15 cents, and a broom for 20 cents; how much did all of them cost?

How many are 12 men and 13 men? 14 cents and 16 cents? 18 caps and 12 caps? 16 apples and 18 apples?

How many are 16 bushels and 15 bushels? 21 weeks and 16 weeks? 25 yards and 15 yards?

Charles bought a book for 25 cents, and sold it for 35 cents; how much did he gain?

William has 29 hens, and sold 8 of them; how many had he remaining?

Anna had 18 dollars, and spent 7 of them; how many dollars had she remaining?

A farmer bought a wagon for 20 dollars, and sold it for 28 dollars; how much did he gain?

John had 26 apples, and gave 8 of them away; how many apples had he remaining?

Mr. Noble paid 32 dollars for a cow, and sold her for 25 dollars; how much did he lose?

A watch and and chain cost 45 dollars what was the cost of the watch, if the chain cost 9 dollars?

John earns 28 dollars a week, and pays 6 dollars a week for his board; how much does he save each week?

May is 25 years old, and her brother is 8 years younger; required the age of her brother?

Henry had 37 cents, and spent 12 cents for candy how much had he remaining?

William had 12 cents, and earned 15 cents more: then he spent 16 cents; how much money had he remaining?

Ross had 25 cents: he gave 5 cents for a top, and 12 cents for a ball; how much had he remaining?

A farmer having 32 sheep sold 12 of them to A, and 15 to B; how many had he remaining?

A boy bought a sled for 40 cents, and a wagon for 35 cents; how much will he gain if he sells them both for 90 cents?

Mr. White paid 28 dollars for a cow, and at the end of two weeks sold her for 40 dollars; how much did he gain if her feed cost him 2 dollars?

Charles had 18 cents, of which he spent 15 cents, and afterward earned 22 cents; how much money did he then have?

A man bought a cow for 36 dollars, and a calf for 12 dollars; how much did he gain if he sold them both for 50 dollars?

At 8 cents a quart, how many quarts of berries can be bought for 32 cents? For 40 cents? For 48 cents?

How many pencils, at 8 cents apiece, can be bought for 56 cents? For 64 cents? For 72 cents?

How many times is 8 contained —

In 24?	In 32?	In 40?	In 16?
In 62?	In 48?	In 46?	In 94?

At 9 cents each, how many books can be bought for 36 cents? For 18 cents?

At 8 dollars each, how many clocks can be bought for 45 dollars? For 27 dollars? For 54 dollars?

How many lamps, at 9 dollars each, can be bought for 72 dollars? For 63 dollars? For 81 dollars?

At 5 cents apiece, how many melons can be bought for 40 cents? For 55 cents?

How many times is 5 contained —

In 10?	In 15?	In 20?	In 25?
In 30?	In 35?	In 40?	In 45?

At 6 dollars apiece, how many bushels of salt can be bought for 12 dollars? For 18 dollars?

At 6 cents a bushel, how many bushels of salt can be bought for 24 cents? For 42 cents?

If a pair of shoes costs 6 dollars, how many pairs can be bought for 48 dollars? For 54 dollars? For 36 dollars?

COLORED PENCILS FOR CHILDREN.
COLORED CRAYONS FOR CHILDREN.
BOXES OF WATER COLORS FOR CHILDREN.
OUTLINE DRAWING CARDS FOR CHILDREN.

FROST & ADAMS CO.

Importers & Manufacturers
of
Artists' Materials,
Mathematical Instruments,
and Picture Frames
37 Cornhill, Boson, Mass.

Special Discounts to Teachers.
New Illustrated Catalogue FREE.

HARVARD UNIVERSITY

SUMMER SCHOOL.

For descriptive pamphlet apply to,

M. CHAMBERLAIN, Cambridge, Mass.

THE NEW YORK
School of Expression

SUMMER SESSION at Asbury Park, N. J.
Genevieve Stebbins. F. T. Southwick.
ELOCUTION, EXPRESSION, PHYSICAL CULTURE. Send for circulars.
Carnegie Hall, New York.

15 CENTS brings you on trial 13 weeks
THE PATHFINDER.
the great national news review for teachers, students, and *all busy people.* Fresh every week from the Nation's Capitol. Used as ideal current-events paper everywhere. Clean, vigorous, concise, classified, non-partisan, entertaining, *cheap.* We ask you to try it 3 months, compare it with others and then decide whether you CAN AFFORD to miss a copy. Agents wanted. $1.00 a year; Low rates for clubs. Address, The Pathfinder, Washington, D. C.

SHORTHAND. It is wise *to be prepared to teach it. It is fast becoming a leading feature in all educational institutions.* ISAAC PITMAN'S system adopted by and taught in Public Schools of New York City. "Isaac Pitman's Complete Phonograph Self-Instructor," 250 pp., $1.50. Specimen pages, Alphabet and Full Rules for Writing FREE TO TEACHERS. Mention POPULAR EDUCATOR.
ISAAC PITMAN & SONS, 33 Union Sq., N. Y.
Take lessons at the Metropolitan School, 156, Fifth Ave., N. W. Cor. 20th St., New York.

LONGFELLOW BOOKLET Entitled "Poetic Gems by Henry Wadsworth Longfellow," just published. A Collection of Longfellow's most celebrated poems. Original colored cover page, with excellent portrait of the poet. Elegantly bound with silk ribbon. Sent, postpaid, for the marvellously low price of 6 CENTS. Two copies mailed, postpaid, for 10c. Special Offer to Teachers. To enable teachers to secure cheap and satisfactory Prizes to give to scholars, we will mail the Longfellow Booklet at the low price of 40c. per dozen copies. Address,
M. C. BURKEL,
479 Nelson Ave., Jersey City, N. J.

REWARD & GIFT CARDS
Thousands New Pretty Artistic Designs of Florals, Flowers, Fruits, Scenes, Views, Crescents, Shields, Scrolls, Easels, Panels, Vases, Ships, Birds, Animals, Juveniles, Landscape, Marine and Water Scenes, etc. Prices for 12 cards; size 3x4¼ inches 8c; 3¼x5½ 12c; 4¼x6 20c; 5½x7½ 30c; 7x9 50c; 9x11 75c. All are Pretty Chromo Reward Cards no two designs alike.
Samples Sent Free to Teachers.
Price List of School Supplies, Embossed, Frosted, Mounted, Silk-Fringed Chromo Reward Gift Cards, Reward, Gift, and Teachers' Books, Plays, Speakers, Recitations, Dialogues, Drills, Marches, Entertainments, Tableaux, Alphabet, Number, Drawing, Prize, Reading, Merit, Credit, Perfect, On Time and Honor Cards, School Aids, Reports, Diplomas, Etc., Free. All postpaid by mail. Postage stamps taken. Address,
A. J. FOUCH & CO., WARREN, PA

AGENTS WANTED.
ADDRESS
JOS. SMITH,
63 Fifth Ave., New York.

GREAT POPULAR OFFER! By virtue of the unprecedented purchase, in a single order, of one hundred thousand (100,000) copies of this acknowledged masterwork of the Century, we are now enabled to offer it to the public at far less than the publishers' prices! Thousands of persons, who heretofore have not felt able to purchase it, will eagerly welcome this opportunity to secure at reduced price "The Greatest Achievement of Modern Times."

THE FUNK & WAGNALLS
Standard Dictionary
OF THE ENGLISH LANGUAGE,
It is incomparably the greatest, as it is positively the latest, most complete, and most authoritative, new dictionary in existence. It is everywhere the standard.
ENTIRELY NEW FROM COVER TO COVER. It is not a reprint, rehash, or revision of any other work, but is the result of the steady labor for five years of over twelve score of the most eminent and authoritative scholars and specialists in the world. Nearly 100 of the leading universities, colleges, and scientific institutions of the world were represented on the editorial staff; 20 United States Government experts were also on the editorial staff. Over $960,000 were actually expended in its production before a single complete copy was ready for the market. Never was any dictionary welcomed with such great enthusiasm the world over. As the St. James's Budget, London, declares: "It is the admiration of Literary England.... It should be the pride of Literary America." The highest praise has come from all the great American and British newspapers, reviews, universities, and colleges, as well as all classes of intelligent men and women everywhere.
The regular subscription price of the Standard Dictionary, bound in full leather, is $18. We will now supply the complete work in one rich, massive volume, elegantly bound in full sheep, sent carriage prepaid to any address for the surprisingly low price of $12. Patent Thumb Index, 75 cents extra. Order from your bookseller, or from
Our Great Offer of The Complete Work $12
WARD & GOW (LINCOLN BUILDING / UNION SQUARE...) NEW YORK.

TEACHERS' AGENCIES.

Eastern Teachers' Agency,
Miss E. F. FOSTER, Manager.
Telephone, Boston, 775-2.
60 Bromfield Street, Boston.

THE FISK TEACHERS' AGENCIES.
EVERETT O. FISK & CO., Prop's. Agency Manual sent free to any address.
4 Ashburton Pl., Boston. *70 Fifth Ave., New York City.* *1242 Twelfth St., Washington.*
355 Wabash Ave., Chicago. *25 King St., West, Toronto.* *Century Bl'd'g, Minneapolis.*
Cooper Building, Denver. *107 Keith & Perry Bldg., Kansas City.* *525 Stimson Blk., Los Angeles.*

Grade Teachers. We are having more calls for first class teachers with normal training than we can satisfy, and can help any successful teacher getting less than $600. We are advertising for teachers, not registration fees.
BEACON TEACHERS' AGENCY,
TREMONT TEMPLE, BOSTON, MASS.

2511 POSITIONS FILLED BY 2511
THE TEACHERS' CO-OPERATIVE ASSOCIATION OF N. E.
Our Manual Free.
Telephone, Boston 2981. F. B. SPAULDING, Manager, 36 Bromfield St., Boston.

THE BOSTON OFFICE OF
THE BRIDGE TEACHERS' AGENCY,
C. A. SCOTT & CO., Proprietors,
is now located at 2A Beacon Street.
Send for Agency Manual. One fee registers in both offices.
CHICAGO OFFICE: H. S. BULLEN, Mgr., 169 Wabash Ave.

NO REGISTRATION FEE REQUIRED TO JOIN
OUR BUREAU, WHICH HAS BEEN ESTABLISHED OVER SIXTEEN YEARS, WE GIVE FAITHFUL SERVICE AND WANT PROGRESSIVE, SUCCESSFUL TEACHERS FOR DESIRABLE VACANCIES. 95 PER CENT. OF OUR APPLICATIONS ARE DIRECT FROM EMPLOYERS. JOIN NOW FOR NEXT YEAR. FULL INFORMATION FOR A STAMP.
CENTRAL TEACHERS BUREAU EDWARD C. DIXON 1330 ARCH ST., PHILA.

PENN'A EDUCATIONAL BUREAU
Does business in every state. 18th year. Favorably known to Superintendents and School Boards everywhere. Our excellent facilities enabled nearly all our applicants to secure positions last year. If you des're advancement, send for circulars. PA. ED. BUREAU, Dept. 10, Allentown, Pa.

The Tree

(To be cut and mounted for supplementary reading)

The snow has melted into water. Part of that water has made little rivers for us. The little rivers are muddy because they carry soil with them as they go. They are our good friends, these little rivers.

All this is in the spring-time. We like the spring as well as we liked the winter when it came. What about the other things that grow? What does the spring do for the wind and plants and animals?

Here is our tree. Has spring changed it? Its roots must feel different since the frost has left the ground. The rootlets can go to work again now. The water is free and can give them food for their tree.

These tiny rootlets do great work for the tree. They reach out into the soil and take what food is good. It is the buds that need the food. They get it from the rootlets. It travels up to the buds through the trunk of the tree and through the branches.

We sometimes like to take part of the trees' sap in the spring. The maple-sap gives us sugar. Do you know about the pine tree's sap, and the india rubber tree?

The buds have slept through the cold of winter. The kind leaves cared for them, then bade them "good-bye." They have been safe under their scales. Such tiny things they were. We should not have known they lived if we had not opened them and found them green.

Now has come their time to grow. The warmth of spring swells them. They draw the fresh sap from the busy rootlets. Soon they will be leaves, branches, perhaps, and do their work for the tree.

The tree needs its bark for protection. The fresh, new wood could not live under the sun's heat in summer. It would be killed in winter without the protection of the rough bark.

We borrow the strength of the tree to build our houses and ships. It is the work of the tree that gives us wood.

Every year the sap travels up through the tree to build the new buds. As it does this, it builds a new ring of wood in the trunk of the tree. So the trees tell their own ages. Some have had twelve hundred rings.

We can only know the tree's age by cutting it down. Then we can see the pith in the center of the trunk. Around that we find the hard, dark heart-wood which is dead. Outside of that, in rings, is the sap-wood, which will someday be like the heart-wood.

Between the wood and the bark is the tender growing part. There the sap is flowing. It is busy making a new ring of wood and a new lining for the bark.

What a strong trunk our tree has! It is strong enough to hold all the new leaves and buds far up into the light and air.

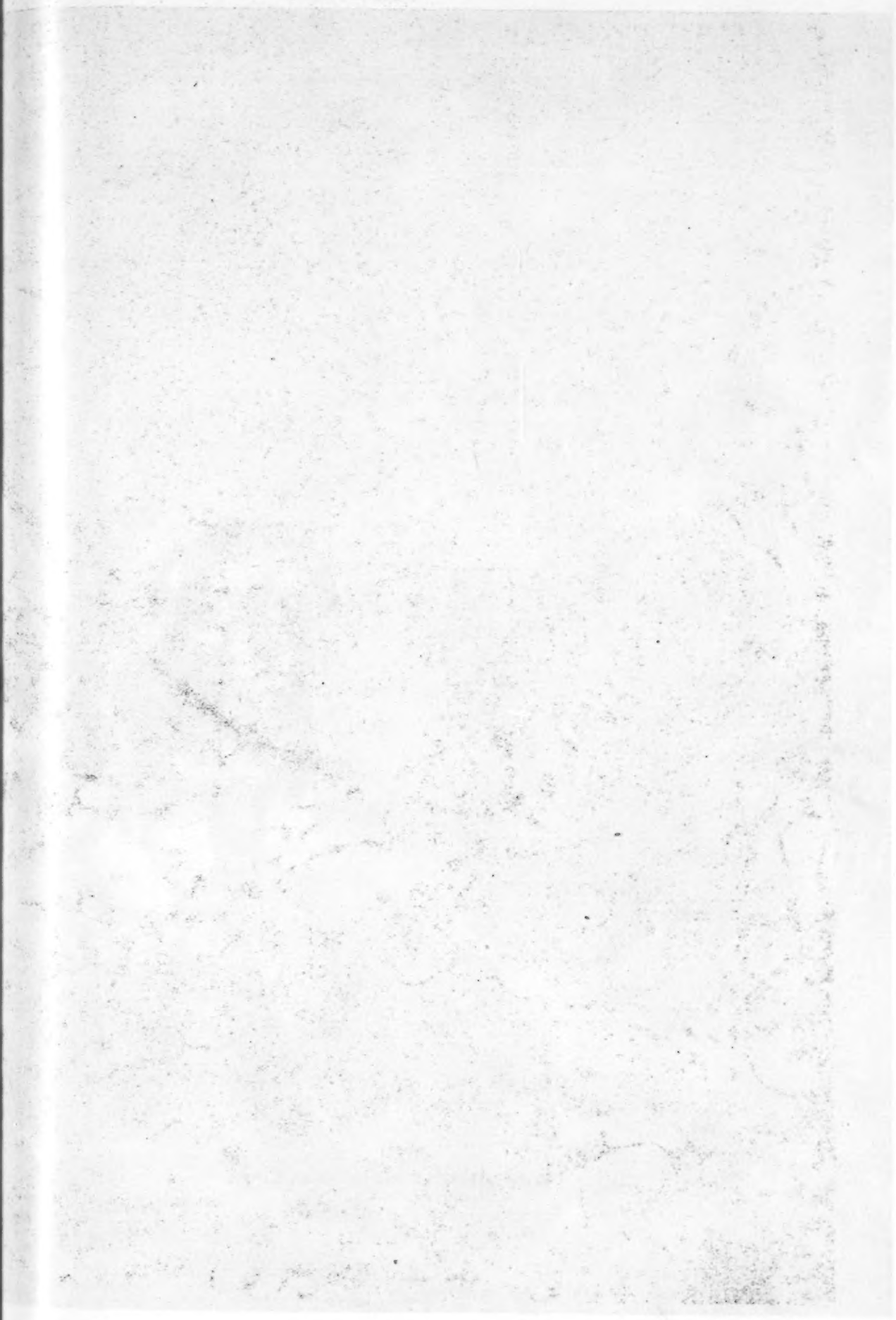
The birch-tree gave Hiawatha its bark for his canoe. An oak of a warm land gives us a part of its bark every year,—it is cork. All bark has what we call a corky part. The lining of the bark is of long threads or fibres. These are used for making rope and some sorts of cloth.

The beautiful wood which makes the useful things in our house was once the heart of a tree. Perhaps it was a tree in a far country. A wood-carver knows all kinds of woods.

While we are waiting for the buds to open, the brown twigs can tell us a story. Do you know what it is? Look at the different shades of color in the twig.

The tips of the twig may be more glossy than the lower part. You may find joints in the twig. Those joints will tell you how many years the little twig has been growing. The spaces between the joints show how much sun and rain the tree has had in all the years.

(C. C. N. S. Envelope)



AN INTERESTIN

ESTING FAMILY